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COMMUNICATIONS

A NEW RADIATION LAMP FOR LOCAL THERAPY

BY
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THIS lamp has been designed to meet the demands of those who desire an instrument of moderate price which will carry out all the usual functions of an ultra-violet lamp for irradiation of the eye. No attempt will be made here to describe its application, nor will the question of the indications for its use be entered into, since this has been adequately dealt with elsewhere; this short article will merely give a description of the design of the lamp, and its mode of employment.

For convenience of manipulation and efficiency, it must be freely admitted that the original lamp designed by Duke-Elder and described in this Journal, 1927, leaves little to be desired; but it, and also an even lower-priced instrument since designed by Rycroft, suffer in the writer's opinion from being far too expensive, their cost being prohibitive for small institutions where the use of such a therapeutic agent, though valuable, is limited. It has been the writer's primary endeavour to reduce the price of the instrument here described to a minimum, and at the same time to lose nothing in efficiency or ease of application.

The apparatus, which is sketched diagrammatically in Fig. 1, consists essentially of a mercury vapour lamp and a quartz optical system for concentrating the energy emitted. The lamp (Hg) is

mounted in a suitable housing which has a removable ventilated roof carrying a filtered inspection aperture (I). The housing and lamp are mounted on a beam (A) which is supported at its point of balance by a heavy base (B). In the side of the housing, opposite the incandescent mercury tube, is the condenser lens (C) protected by a short tube which carries at its end an iris diaphragm (D); this diaphragm replaces the usual wheel of apertures and is found more convenient and efficient in actual use, as well as simpler. At the far end of the beam is the projector lens (P) mounted centrally in a flange (F2) which prevents the access of any scattered radiation

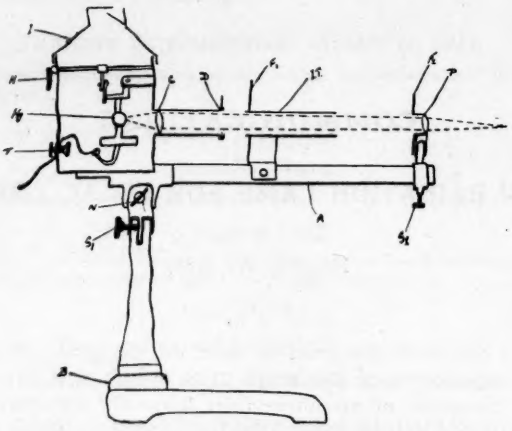

FIG. 1.

to the patient's face. Centring of this lens in the vertical plane is permitted by its being carried on a metal cylinder fitting exactly over a peg which is part of a rectangular mounting; this mounting provides for focusing of the light by its sliding along the beam, and for fixation by the locking screw (S2). An intermediate tube (I.T.), the interior surface of which is finished a dull black, intervenes between the lenses, and carries at its source end a wider flange (F1) further to prevent scatter. (Though filters have been found by the writer to have a practically negligible use in local therapy, should they be desired this intermediate tube would provide a very convenient means of incorporating them; a simple drop slit is suggested to this end.) The mounting of the intermediate tube is also capable of alteration of position on the beam, and is fixed by a locking screw.

Several points in the optical system deserve special mention.

In the first place it has been simplified by being reduced to two lenses; though quartz is used as a lens material on all such lamps, some absorption still occurs, and the elimination of the usual middle lens results in a higher final output of ultra-violet rays. The condensing lens is of compound type of ultimate strength 22D.; the system is of new design and is so worked as to produce an even field of illumination from what is essentially an astigmatic source—a device which, so far as I know, has not been utilized before. The most important feature of the projector lens consists

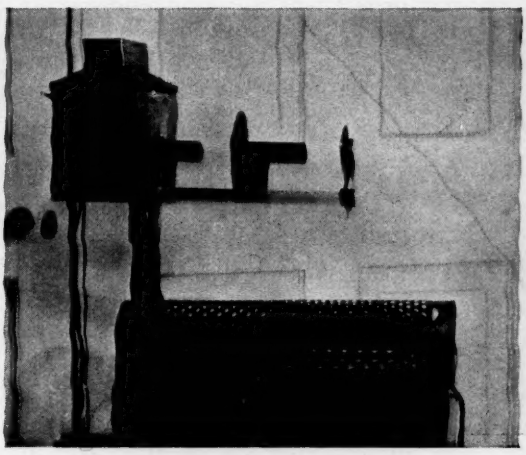

FIG. 2.

in its having an aperture of 36 millimetres, which is greatly in excess of that of previous systems, and is a decided advantage. The practical result of such a system is that any type of lesion of the globe or lids which it is desired to treat can be suitably irradiated; by the combined manipulation of the aperture of the iris diaphragm and the position of the projector lens, a focused circle of light of any diameter from 2 to 50 millimetres can be obtained.

The beam is mounted on the stand through a pin-joint, which allows of vertical adjustment and is clamped by a butterfly-nut (N); adjustment in the horizontal plane is provided by a peg-joint which is also capable of being fixed by a thumb-screw (S1). Finally, the whole apparatus can be moved into position by sliding over the glass top with which the table is provided, contact between this

and the base being through cork pegs, which are found to give the desired combination of steadiness and relative ease of movement.

The instrument is used on a table which is a slightly modified form of the standard adjustable table made by Messrs. Clement Clarke of Wigmore Street. It has been found quite satisfactory—in the case of some patients, the alteration is an improvement—to dispense with a chin- and head-rest; the patient's elbows are rested upon the table which is adjusted to a suitable height, and the chin rests in the cupped hands. The alterations of the patient's positions

FIG. 3.

are more easily carried out when the head is steadied in this way than when a chin rest is used; the lids are as usual held open by an assistant only if necessary.

A photograph of the apparatus is shown in Fig. 2, and one of the apparatus in use in Fig. 3. The mercury vapour lamp runs at 2 ampères, the ordinary mains current being suitably converted by the use of a resistance. Ease of starting is ensured by mounting the lamp on a rocking device actuated by a lever on the housing shown at H. Fig. 1. The apparatus is made by L. H. Miller, of 6, Lannoy Road, New Eltham, S.E.9.

I would like to take this opportunity of expressing my indebtedness to him for his ready co-operation, and for many useful suggestions with regard to details of construction. I understand that the price of the instrument is not yet definitely fixed, but that this will certainly not exceed £24, inclusive of the resistance.

THE TRACHOMA PROBLEM

Part of this paper was read on behalf of the Author at the April meeting of the International Organization for the Campaign against Trachoma, 1935

BY

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IT is with considerable hesitation that I venture to make a somewhat hurried contribution to a topic which has already been overwritten, lest I add more dust to the fog in which it is enveloped. My excuse is that this clinic in conjunction with the King Institute of Preventive Medicine close by, has worked at the trachoma problem on and off for the past 15 years without publishing more than a few official notes, inasmuch as our work did not differ in any important respect from some of the positive and negative investigations published in detail by others.

Recently, however, Dr. C. G. Pandit, the Officiating Director of the King Institute and his co-workers, co-operating in a new line of investigation with me and my staff have made at least one observation which may well give a fresh stimulus to the somewhat disorganised attack on the trachoma problem similar to, if feebler, than that with which Noguchi revived the interest of the ophthalmic world in this subject in 1927. At that time the hopes placed in the Halberstaedter Prowazek inclusions had become fainter just as today the B. granulosis has left unfulfilled the anticipation of its discoverer. Work centred on both, has, however, strengthened the investigation of the vital point. We trust that the Madras observations will at least act as a reinforcement.

Julianelle and Harrison pointed out in the *Amer. Jl. of Ophthal.* for November, 1934, that "a precursory study of the literature in trachoma reveals the confusion existing on the subject." They are not the first to remind the ophthalmological world of this fact, but we can hardly be reminded of it too often. Their desire to establish a sound background or foundation for the study of the problem by the confirmation of observations already recorded in the literature, is a basic necessity. They trace the present confusion primarily to "a general vagueness of the cause." Whilst this is no doubt true it is equally clear to many research workers that there is also a general vagueness as to what is meant by trachoma clinically; a fact which the authors referred to, fully acknowledge by making a statement of their cases selected for experimentation. It must be emphasized that in investigating trachoma the first

obstacle which presents itself to the experimental scientist is the difficulty which clinicians have in deciding what exactly they mean by trachoma. The longer one pursues this question the more difficult does the answer become, for experimental purposes. The research workers of the past 15 years are not peculiar with regard to legitimate doubts, although they might have been more meticulous in trying to answer, in view of the more exacting nature of experimental research as to the delimitation of the problem in hand, and the necessity for either building a research on old foundations truly laid or laying new foundations. What does the average ophthalmologist mean by trachoma? Are we entitled to think that there is any specific disease entity to which this name may be given? The answer is in the affirmative, but when we come to examine the question in the light of the evidence—written and verbal—of those whose experience entitles them to an opinion it is at once apparent that the gravest doubts have assailed the master observers of the past half-century as to the clinical limits within which any one of them would confine the ultimate entity.

To attempt a detailed chronological survey of the literature with a view to setting forth diverging views would be a monumental work and quite unnecessary for my purpose as the fact is fairly obvious without this. Analogy leads us to think that outside the limits which the individual observer adopts, be these wide or narrow, lie a congeries of what might be called trachomatoid affections. I do not refer to those conditions which stand out distinctly from trachoma when clinically well defined, such as spring catarrh and the follicular conjunctivitis of adenoid hyperplasia, but conditions, more especially in their earlier stages, which represent an inflammatory response of the lymphoid tissue of the the conjunctiva to noxious influences, which some would definitely label trachoma, others, perhaps in genuine doubt, might call trachoma-like, or preferably trachomatoid. The difficulties in establishing personal criteria are great, and still greater if we attempt to find universal criteria. It was not from inexperience that Roemer spoke of "Trachoma?" or that Fuchs hesitated to dogmatize, although others of the latter's school have been bolder in this respect. Many and varied have been the attempts to define phenomena as pathognomonic. The presence of the cell inclusions of Halberstaedter and Prowazek held at one time by some to be proof positive are to-day placed by the work of Thygeson and others almost in the opposite camp. It would seem that if they indicate anything they suggest that the blenorrhoea of the new born, of Morax and swimming-bath conjunctivitis together constitute a condition *sui generis*. McKee sums up the position of the "H.P." inclusions in the January number of the *Amer. Jl. of Ophthal.;* he himself having independently arrived

at the same conclusions as Stewart, namely a bacterial origin of these bodies. Over 10 years ago I listened to divergent views on the significance of these bodies in the Freiburg clinic by Axenfeld on the one hand and von Szily on the other. They have passed through varying fortunes since then at the hands of Lindner and many others, but are not yet of certain diagnostic value. There may well be varieties of conjunctival cell inclusions some of which are bacterial in origin and some akin to the so-called true inclusions of the virus diseases. One has only to examine Negri bodies by the most recent refinements of staining—as demonstrated to me a few days ago by Col. Shortt, Director of the Pasteur Institute, Kasauli, to realise that the internal structure of cell inclusions has still many things to disclose to the microscopist. To take a different approach, certain writers have held and some still hold, that trachoma does not flare up at the start like an acute bacterial disease, others, more careful, say that it may do so. Morax has been quoted in support of a non-acute origin. It is hardly likely that he would hold such an opinion today in view of the evidence of the artificial production of trachoma in the human subject, or should he do so, it would merely separate as trachoma or trachomatoid, the affection which started gently or violently as the case might be. Some would have it that if trachoma does start acutely it is because of some bacterial concomitant. This is more difficult to disprove on the experimental human subject.

At the other extreme, nearly all observers are agreed that scar tissue at least is an essential part of untreated trachoma. Some would argue that an untreated trachomatoid ophthalmia (the name seems less objectionable than trachomatoid conjunctivitis), which does not go on to the formation of scar tissue cannot be trachoma. I can argue against this view by stating that in at least one case of a normal human volunteer inoculated with "trachoma" material, from which followed a trachomatoid condition, there was spontaneous recovery with so little scar tissue that the healed conjunctiva would have been passed as normal by the bulk of ophthalmic specialists not accustomed to use the corneal microscope for such work. This production of scar tissue is no doubt one of the outstanding features of trachoma and the trachomatoid affections, but it is an extremely variable feature and alone cannot be used by experimentalists as a criterion of trachoma. Like others interested in this subject I called on Noguchi in 1927 to see his chimpanzees. To me there did not appear any reason for adopting a view which subsequently gained ground that his animals could not have acquired trachoma because certain clinical features of the human disease were absent. One of the features mentioned was this scar tissue formation. One cannot argue that because the clinical appearances of a human disease transmitted to animals are

different from those in man (even in an apparently gross histopathological respect), it is not the same affection; at least no research worker accustomed to animal experiment would be convinced by such argument. Incidentally Fuchs considered Noguchi's chimpanzees showed the clinical equivalent of human trachoma. I do not wish to minimize the scar tissue feature but only to point out that even this, the sheet anchor of clinical trachoma, may lead us into difficulties. It has been brought home to me, as I presume it has to many other workers, that the handling of the lids frequently has a considerable influence on the formation and distribution of scar tissue. In following up experimental human cases with the corneal microscope one has only to observe the fissuring and tearing of the sub-epithelial and even the epithelial coats which result from a little extra tension on the everter, to get a new conception of the appalling traumatisms to which the trachomatoid ophthalmias are subjected by the average eye specialist. In the swollen congested earlier stages of the disease, the slightest extra tension causes rupture of the conical baskets of capillaries which form the vascular scaffolding of the papilliform sub-epithelial tissue proliferation. These capillary haemorrhages are so prominent that it is surprising that they have not been more stressed by workers like Wilson. Even the fine honeycomb markings determined by the deeper or basal vessels of the capillary papillae are sometimes greenish-brown, apparently owing to diapedesis or seepage of red cells and deposition of blood pigment. This naturally leads us to the attempts to find characteristic clinical beginnings such as Wilson's proto-trachomatous stage as determined by the slit-lamp, and the observations of Cuenod and Nataf on the early cicatricial changes. From a recent prominent English review one might well get the impression that Wilson considers his proto-trachomatous stage pathognomonic, although Wilson distinctly states that these changes cannot be regarded as diagnostic of trachoma. One gathers that Wilson hesitates to add another clinical stage to those introduced by MacCallan and probably most research workers will sympathize with this attitude. We have never been able to adopt the Egyptian clinical classification in this hospital, although MacCallan's typing has no doubt proved extremely useful to many. If we turn to histopathology for help we get little, although in this sphere there is greater uniformity of views. Recent workers have added nothing material to Mayou's Hunterian lecture of 30 years ago. The sub-epithelial plasma cell infiltration between the follicles is still the only definitely characteristic thing about the trachomatoid group. Histopathologically there does not appear to be any such thing as a "follicle" peculiar to what we visualise as trachoma. Kirkpatrick with his extensive experience in the pathological department of this school, and with access to a far

greater amount of material than Mayou, could not add anything definite. He handed on his scepticism of the average diagnosis of trachoma to me and I have found it easy to agree with him. No doubt Herbert's contribution to the clinical isolation of spring catarrh cases by finding a preponderant eosinophilia in conjunctival slides was a distinct advance although it is surprising how often it fails on the side of negative findings, not positive as one might expect in a country with over 80 per cent. of hookworm infections. The examination for an excess of lymphocytes, plasma cells, or eosinophiles in conjunctival smears is a disappointing clinical test in doubtful early trachomatoid affections.

As regards the clinical appearances of the conjunctiva alone, in early or even more marked cases where yet the cornea is not obviously affected, there is, and has been for years, such divergence of opinion that it becomes ridiculous to use a term which denotes a disease entity to embrace the conceptions of various authorities. About 14 years ago, I visited Swanley to try to get an idea of what Treacher Collins regarded as definite early trachoma. I find on looking up my notes the opinion which I did not then dare to express verbally: "I feel sure some of these cases would become normal if left untreated." We have sometimes been able to put cases with a similar diagnosis from well-known European and Asiatic clinics to this test and have not been disappointed. Our present practice is to treat all trachomatoid cases, if without corneal complications (and sometimes even those with distinct corneal changes), by lavage, till we feel that they must be treated as trachoma. Some months ago when discussing trachoma with F. F. Tang in the Lester Institute, Shanghai, where he had isolated a number of strains of B. granulosis from trachoma cases, I asked to see a case. It did not seem to me that the only case available for demonstration at the time could be regarded clinically as trachoma for experimental purposes. I hope I made this statement on the spot, if not, he, as an experimental scientist rather than a clinician, will forgive me for making it now.

From a statistical aspect the confusion which exists in the minds of ophthalmic specialists over the clinical appearances of the disease called trachoma is of importance. Last year the International Association for the Prevention of Blindness and the International Organisation Against Trachoma forwarded its 1934 report. In a section, on British India, occurred the following statement: —

"Dans un regiment de cavalerie en garnison dans la Province de la Frontière Norde-Ouest, 97% des Sikhs, 93% des soldats du Punjab et des Pathans, et 50% des Dogras étaient atteints de trachome.

Dans un bataillon d'infanterie en garnison dans la Province de la Frontière du Nord 73%, des Sikhs 48% des soldats du Punjab et des Pathans, et 39% des Dogras étaient atteints de trachome."

The statement seemed to me to require confirmation or elucidation, not only in the interests of trachoma research, but also in the interests of the Army in India. I visited the Public Health Commissioner with the Government of India, Simla, who placed the responsibility for the part of his report—from which the figures are supposed to have come—with the Director of Medical Services in India. The D.D.H.P., Army Headquarters, India, did not understand how these figures were arrived at and questions their correctness, so, in order to clear the matter up, I have placed the latter in direct communication with the author of the above quotation. I give this as an instance of the elasticity or breadth of the present methods of clinical diagnosis. There would certainly appear to be room for doubt as to whether the figures are correct if we accept the sense in which many well-known ophthalmic specialists use the word trachoma. If we use the word trachoma in as loose a sense as that employed by those who primarily furnished the figures on which this international report was based, it may well do as much harm to the cause of the prevention of blindness as the Association intends to do good. Once the average practitioner in a country like India gets hold of the idea that any case of trachomatoid ophthalmia—or as he calls it, "granular lids" —is trachoma, he treats it as trachoma, quite likely by one of the more appalling methods advocated by ophthalmologists for severe or obstinate cases. This definitely ensures a larger number of serious ophthalmias in India than would otherwise be the case. For years I have been trying to teach both students and post-graduates to avoid diagnosing "granular lids" in eye cases about which they are uncertain and thus condemning their patients to the more crude treatments recommended for trachoma.

If we consider clinical opinion on the value of the vascular invasion and infiltration of the cornea which eventually give rise to pannus as one of the criteria of trachoma, it appears that there is not so much room for divergence. A typically situated "pannus trachomatosus" as it is called, when well established, with facets, rounded follicular infiltrations, or Herbert's pits, together with the conjunctival plasma cell hyperplasia, follicle formation, and scar tissue formation, gives a picture which most ophthalmologists would regard as affording satisfactory clinical criteria of trachoma. When we try, however, to establish certain of the early stages of the corneal invasion as pathognomonic it is more difficult and again we have serious differences of opinion. Wilson, for instance, has suggested that a certain type of behaviour of the extreme capillary fringe—the terminal marginal corneal loops of Graves—indicates trachoma when taken in conjunction with suggestive conjunctival appearances. I must contest this view. I have seen the appearances he describes in otherwise

suspicious cases which did not progress to typical trachoma when left untreated, in inflammatory cases of a non-trachomatoid nature, and finally so slightly marked in the induced human disease as to be indefinite. Herbert's lacunae and pits are regarded by many as characteristic. Unfortunately, there is some confusion amongst recent workers about what he actually described as may be gathered from the explanation of their origin by Meyerhof. I do not know if Herbert would agree today that the pitting he described was equivalent to the "ocelles" of Bonnet, but he originally made a point of dissociating his lacunae and pittings from a follicular genesis, so that those writers who see in these appearances the subsidence of small follicles are not observing what was originally described. If one regards the response to treatment as helpful in establishing a diagnosis there is much to be said in support, provided it is remembered that the ordinary response of the conjunctival membranes to the majority of noxious influences is that which one would expect of a lymphoid tissue.

One is tempted to think of an analogous problem and how its solution was aided to a great extent by treatment. I refer to what was formerly known as "dysentery"—now more aptly called "the dysenteries" or "dysenteric group of affections." It is still possible to find another dysentery although, thanks to a great extent to workers in this country, the number of distinct entities within the group is already considerable. In the early stages of the response of the mucous membrane of the large bowel there was formerly little to help the pathologist; it was more exact methods of bacteriology and parasitology and effects of treatment which cleared the air.

The treatment of trachoma has been so futile that in bad cases we are satisfied with destroying the conjunctiva and allowing scar tissue to replace it. The idea that this is the ultimate goal of treatment has steadily gained ground with the profession in general until it has been adopted on a large scale in the treatment of early trachomatoid affections, and in fact in every conceivable conjunctival affection with which early trachoma might be confounded. It is unnecessary to point out the folly of applying standard methods of trachoma treatment to a conjunctiva which, if left alone or washed with a non-irritant, would return to normal. In fact if one goes round the world, as I have done, observing the methods employed in the various dispensaries (and ophthalmic clinics) in the treatment of the trachomatoid and other affections of the conjunctiva, one is left with the impression that if some of the patients have not got trachoma when they first come to the clinic—and who is to say in the early stages whether they have or not—they will certainly be fortunate in not having either trachoma or its equivalent by the time they leave after a course

of treatment. Empirical treatment, then, can do a great deal of harm, but it may also help us in eliminating certain cases which we might otherwise regard as definitely trachomatoid. Expectant treatment by mild harmless methods, whilst the eyes are under careful observation, is wise in the hands of expert and inexpert alike. I am hardly alone in having observed peculiar cases of the disappearance of what might be regarded as typical classical trachoma. For example, a typically trachomatous conjunctiva returned to normal limits after an attack of generalized dermatitis exfoliativa due to arsenic. It may be said that this was of course syphilitic conjunctivitis; this is the most likely explanation, but the clinical condition deceived a number of experienced ophthalmologists. There is no need to multiply instances of other empirical cures; all workers of experience have no doubt observed them. The point I wish to make is, that if mild harmless drug treatment and lavage causes permanent disappearance of early trachomatoid signs, or relieves them so that the condition is recurrent but non-progressive, the affection is not trachoma although it may be trachomatoid, and the correct label should be used. The words "granular lids" in this connection should be abolished from the literature and from the hospital and dispensary nomenclature of countries actively interested in the prevention of blindness. Numerous empirical experimental methods of treatment have been tried, sometimes on a small scale, at other times more extensively, and these need concise tabulation for the information of workers interested in this possible line of attack on trachoma. One might prolong a discussion on the difficulties and confusions which confront the investigator in this great problem. I shall only refer to one more, that of using animals to aid our diagnosis. Already one of the fallacies in this connection has been alluded to: we must not necessarily expect trachoma to adopt the same behaviour in animals, even the Simians, as it does in man. Within the past few years a great deal has been done to clear up questions of Simian experiment, *e.g.*, the extent to which natural monkey conjunctivitis may be confused with experimentally produced lesions. The same may be said of the attempt to determine—by means of large scale experiments—the typical results of transferring material from trachomatoid and other ophthalmias to different species of Simians (Olitsky, Thygeson and others). This is certainly a move in the right direction. I might perhaps mention that it is important to be quite certain of the species used. I have noticed in one laboratory a confusion between rhesus and sinecus. So far no clear case has been made out for the retransference of any experimentally produced trachomatoid affection to man.

At least one recent writer has suggested that experimental work in human volunteers is more likely to produce fruitful results.

This would appear to be so, and it seems desirable that such work, *e.g.*, that of Piringer and other observers should be accurately and fully tabulated. At the beginning of this paper it was suggested that the investigation of the trachoma problem was disorganised. This is the impression one gets from a perusal of the literature. In view of the fact that there is such widespread interest in the problem and that the recent literature indicates a more concentrated effort, it may not be out of place to suggest that an attempt be made to abstract the international literature and present it under the different headings of investigation in an orderly and abbreviated form available to future investigators in any of the different fields, for easy reference. Such a work might well form part of the programme of an international association such as the International Organisation against Trachoma or of a journal such as the *Revue du Trachome*.

In so far as our local researches are concerned I have adopted the working plan of regarding as trachoma donors only such cases as show marked conjunctival appearances including follicles, capillary haemorrhages and some evidence of cicatricial changes well within the limits acceptable to the bulk of ophthalmic specialists, together with pannus and its concomitants of a similar acceptability. The absence of "H.P." bodies or the B. granulosis is not regarded as a contraindication, nor is the presence of any bacterial inhabitant. An excess of eosinophiles in the conjunctiva is regarded as a contraindication to selection. For practical clinical purposes, cases falling outside these limits are regarded as trachomatoid, unless some definite indication places them under suspicion in another group such as that of follicular conjunctivitis, spring catarrh, etc.

It was originally intended to withhold publication of that part of our work which has recently centred around attempts to isolate a virus from trachomatoid ophthalmia until we proved it of definite value or otherwise, but circumstances connected with the exigencies of Government service demand that some of the results, however immature, should now be recorded in the organ devoted to official Indian research, *viz., The Indian Journal of Medical Research.* It may be briefly stated here without infringing Government regulations that a virus has been isolated on the allantoid membrane of the chick from cases which showed such clinical stigmata of trachoma as to leave little doubt of their general acceptability, but up to date attempts to reproduce the disease by implantation on the normal human conjunctiva either in the case of the original growth or that of the sub-passages has not been successful. This virus is filterable (by ordinary methods of filtration), and the filtrates reproduce similar lesions on the allantoid membrane. With regard to filtration it is well-known that vaccinia virus is filterable

with difficulty unless filtration is carried out with serum or broth. This renders doubtful some filtration experiments carried out by methods prior to this technique. With this in view we have not carried out transmission experiments with filtered human trachomatoid material on normal humans or allantoid membrane, as we think that in such filtration experiments Gradacol membranes (Elford) should be used. These were not available at the start of our experiments.

This paper is not intended to be a scientific criticism of matters referred to, nor does it pretend to touch upon the many important phases of the trachoma problem, nor yet to make even a passing reference to the work of some who have done more in this field than others whose labours have been referred to; it is nothing more than a superficially discursive and almost unpremeditated statement such as might have been delivered at the annual meeting of the International Association for the Prevention of Blindness and the International Organisation against Trachoma had I been able to attend.

CAMPAIGN AGAINST TRACHOMA*

(Presidential Address)

BY

PROFESSOR DR. EMILE DE GRÓSZ

ACCORDING to § 2 of the statutes of the International Organization against Trachoma, initiated on the occasion of the XIII Ophthalmological Congress by van der Hoeve and Marx, and formed at Geneva in 1930, one of the aims of this Organization is "to hold conferences directed to the strengthening of the scientific bases of the anti-trachoma campaign, to settle questions of aetiology, diagnosis, therapeutics, spread and prophylaxis, and to occupy itself generally with the scientific and social effects of trachoma as well as to prepare bills and legislative measures for the same."

The session held at Madrid in 1933, on the occasion of the XIV Ophthalmological Congress was in the service of this aim. Here MacCallan, Angelucci, Morax, Pittaluga and Thygeson presented very valuable referata on the aetiology of trachoma. The session held in Paris in 1934 together with the International Association for the Prevention of Blindness initiated by its esteemed president de Lapersonne, served the same cause. At this session the referendaries MacCallan, Issa Hamdi el Mazni bey,

* Read at the meeting of the Organization on April 3, 1935.

Luigi Maggoire, Lasnet, Wibaut and Cuénod introduced the anti-trachoma campaign in the colonial and the tropical States.

We are endeavouring to fulfil this same mission by this session today, which session, by favour of the Ophthalmological Society of the United Kingdom and the Royal Society of Medicine we are able to hold in Great Britain, in the country of Thomas Young, Mackenzie, Bowman and Critchett. On this occasion Dr. Josephus Jitta will speak of the co-operation of the League of Nations in the anti-trachoma campaign, MacCallan will expound the general principles of trachoma prophylaxis. Tewfik will report upon Egypt's struggle against trachoma; Miyashita on Japan's and Zachert on Poland's struggle against trachoma.

We owe many thanks to Josephus Jitta for supporting our organisation with his valuable experience and authority. The report which he, together with Lutrario in 1934, presented to the Hygiene Section of the League of Nations is a fundamental work which affords a picture of the geography of trachoma and its prophylaxis, and completes the referata delivered at the XIII International Ophthalmologicel Congress. No one discusses the general principles of prophylaxis with more competence than MacCallan whose imperishable merits I thoroughly set forth in my inaugural speech as Chairman last year.

In Egypt and Japan (where they have set up 1267 dispensaries) and in Poland (where they have set up 347 dispensaries and 2 school sanatoria with 860 beds) they have made great exertions in the organisation of the anti-trachoma campaign and the knowledge of these exertions will be edifying to us just as in the past year we learned much from the referata which we heard on Italy's admirable accomplishments, and also on the campaign organised in Algiers and Tunis.

These sessions endeavour to afford a solid scientific basis for the anti-trachoma campaign. The Royal Hungarian Government endeavoured to do the same when it allocated the sum of 2000 Swiss francs as a prize for the clearing up of the aetiology of trachoma.

In rewarding Taboriski and Lumbroso we also gave satisfaction to Halberstädter and Prowazek, who, by their investigations carried on a quarter of a century ago in Java, gave a great impetus to the research for the aetiology.

It is with deep emotion that I mention Angelucci the great apostle of the doctrine of constitutio, and Hideyo Noguchi the discoverer of bacillus granulosis, who started the extensive research work of the Rockefeller Institute. The work of these two deceased savants is continued by a whole band of trachoma research workers, whose names will undoubtedly be appreciated at future sessions.

The delegates of the ophthalmological associations of the various

States, at their session held on April 3, 1935, elected MacCallan as Chairman of the next cycle. He was at the head of the anti-trachoma campaign in Egypt for 20 years. One characteristic of the English spirit is that wherever it gains a foothold it takes culture and civilisation. So did MacCallan who, when departing from Egypt, left 40 trained specialists, 29 permanent and 14 travelling hospitals for eye-treatment. Today the number of hospitals has increased to 64, and the number of school dispensaries to 32. There are 1270 beds available and the number of patients treated annually amounts to 800,000. This signifies that the system created by him is vigorous and capable of development. The members of the International Ophthalmological Congress to be held at Cairo in 1937 will have the opportunity to convince themselves of what MacCallan created and of the self sacrifice with which the wise Egyptian Government furthered this great work of art. His statue, set up in the garden of the Giza Memorial Ophthalmic Laboratory bears witness to the fact that Egypt appreciates his great services.

It is with great assurance that for the next cycle I shall pass over to him the Chairman's seat which hitherto I have so unworthily filled. Doubtless I owe this great honour to the fact that in Hungary, Parliament passed a special law on trachoma as early as 1886, the fundamental principles of which are still correct.

During the 15 years in which I have acted as Commissioner for Trachoma Affairs, I have set up the same fundamental principles as MacCallan, namely that the eye hospitals and eye departments are the centres of anti-trachoma prophylaxis. Cure and prophylaxis are sisters and are not antagonistic to each other. This is also proclaimed by Sir George Newman.

We fight against trachoma with the weapons of science and enlightenment, but we are well aware that culture and prosperity prevent the spread of trachoma.

England has been in the foreground in this sphere also for decades. Even today, the words of Lord Beaconsfield are valid : Public health is the foundation upon which are built the happiness of the people and the power of the State.

And this could not be otherwise for the highest patrons of the hospitals and the prevention of disease are His Majesty the King and the Royal Princes.

The campaign against trachoma may deservedly be placed among the campaigns against cancer and tuberculosis. Trachoma was unable to spread in England. This was due to wise preventive measures and to the self sacrificing work of the ophthalmic surgeons. The continuation of prophylaxis and constant watchfulness are great national interests. The enormous spread of trachoma in India should be a warning. It is true that people do not

die of trachoma, but it endangers the sight, which is the means of gaining knowledge, happiness and delight in the beautiful.

I do not doubt that the lectures today will bring valuable data for the anti-trachoma campaign. I do not doubt that the new executive committee under the leadership of MacCallan will give new energy to the fight.

There is still very much to do. But the new Chairman will be reinforced by old tried friends. Among these in the first place I mention Morax who at the head of the French Trachoma League and as editor of the *Revue Internationale du Trachome* does invaluable service to the cause of trachoma; de Lapersonne, president of the Association Internationale de la Cécité, who at the French Medical Academy represented the anti-trachoma campaign with such wisdom; and Wibaut the experienced cautious General Secretary of our organization, who can proudly point to the results achieved in Amsterdam with regard to the victory over trachoma.

In the past 5 years we have laid the foundation of our organization. The Valhalla of the anti-trachoma prophylaxis will be built by the new staff.

Sursum corda!

SOCIAL AND ADMINISTRATIVE MEASURES AGAINST TRACHOMA

A paper read at the meeting of the International Organization against Trachoma on April 5, 1935, translated and epitomised by A. F. MacCallan, C.B.E.

BY

DR. ZACHERT

WARSAW

THE campaign against trachoma constitutes a complicated problem which consists of two parts.

Zachert considers that in the campaign against trachoma two principles are concerned. The first is to prevent, or to limit as far as possible the appearance and the propagation of the disease in a population, and the second is to provide treatment so that the effects of the disease may be limited and at the same time to destroy foci of infection.

The means suitable to effect these objects must differ in various countries and the author describes the social and administrative measures which are in force in Poland.

He points out the unfavourable frontier position of Poland,

situated between Eastern Europe, where trachoma is very prevalent, and Western Europe where the disease is far less common.

A decree was issued by the President of the Republic with reference to the necessity of establishing prophylactic and therapeutic establishments throughout the country, and of insisting on the treatment of those affected and on the prevention of the propagation of infection.

In the anti-trachoma warfare the front line trenches are held by the ophthalmic clinics at the public hospitals which are fully equipped for the purpose, while the second lines are to be manned by smaller therapeutic units which will be established far from the larger centres of population in order to supply the needs of the countryside.

There were already existing in the country districts dispensaries for anti-tubercular and anti-venereal work carried on by municipalities and staffed by the local doctors, so these were utilized for the commencement of anti-trachoma treatment. In this way, in a relatively short time, an anti-trachoma organization was established, so that in 1934 there were 400 centres where trachoma was treated. These general practitioners before commencing work undergo a special course in the diagnosis, therapeutics and prophylaxis of trachoma.

About 50 per cent. of the anti-trachoma dispensaries are branches of hygiene centres, 30 per cent. are branches of dispensaries for the treatment of other diseases, and 20 per cent. are independent trachoma units.

It may be stated in round numbers that there is a trachoma dispensary for every 80,000 persons of the population inhabiting an area of 1,000 square kilometres (386 square miles), where there are 1,000 trachoma patients to treat.

Zachert states that while this arrangement is not entirely satisfactory theoretically, it is the best that can be done at present to get an anti-trachoma campaign in working order.

The Red Cross Society of Poland has organized two travelling hospitals (services mobiles) each of which has three ophthalmic surgeons and the necessary subordinate staff. These work during the three summer months in localities which are far from the existing means of ocular treatment.

A valuable item on the programme is the institution by the Government of an anti-trachoma column which travels about the country under the charge of an experienced ophthalmic surgeon carrying out inspection of the dispensaries and giving expert help to the doctors who are in charge.

Among other important weapons which the Polish Government has made use of in its strife against trachoma are two trachoma schools in each of which 400 children are treated and educated. One of these has recently been closed owing to its success.

According to the law, persons infected with trachoma are obliged to undergo treatment and observe certain hygienic regulations in order to limit the propagation of the disease. Medical practitioners are obliged to notify all cases of trachoma which come within their purview, and these are registered at the appropriate Public Health Office. Then the District Medical Officer has to warn the patient and his family as to the danger of infection, and see that treatment is carried out. If this is neglected a fine may be imposed.

Dr. Zachert makes no claim that all these regulations are carried out, as yet, with complete strictness. He observes that with a chronic disease such as trachoma it may be impossible to seize on it at its inception, also it must often happen that diagnosis is faulty.

In order to appreciate the incidence of trachoma in Poland it is necessary to see the figures relating to the infection of recruits for Army Service. This is about 1.5 per cent.

There is of course a special Government Department to organize and direct the anti-trachoma campaign. This is presided over by Dr. Zachert. After a careful examination of his report it is abundantly clear that he is a first class organizer with a highly scientific outlook.

His multifarious duties have already been indicated, for he supervises all the activities which have been very briefly described. In addition he has arranged post-graduate courses of 10 to 15 days which are attended at various times by the medical men who carry on the clinical work. There is also published a trimestrial journal containing original articles as well as abstracts from foreign ophthalmic publications.

LEGAL AND SOCIAL MEASURES AGAINST TRACHOMA IN JAPAN

A paper read at the meeting of the International Organization against Trachoma on April 5, 1935, translated and epitomised by A. F. MacCallan, C.B.E.

BY

PROFESSOR MIYASHITA

JAPAN

AT the XIII International Congress of Ophthalmology at Amsterdam Miyashita gave an account of the geographical distribution of trachoma in Japan. This was published in the Reports (Vol. III, pp. 169-200). In the present communication he describes the

legal and social measures which have been adopted to combat the disease.

In 1919 the Japanese legislature passed an important law to enforce these measures, some of the provisions of which may be mentioned. Every medical practitioner who diagnoses a case of trachoma must give proper instructions to the patient and the relatives as to disinfection and preventive measures, which have to be carried out, and the patient must undergo treatment; in the case of destitute persons the cost of treatment is provided. The employment of domestic servants who are infected with trachoma is forbidden. In schools, workshops, hotels, lodging houses and hairdressers' shops the manager is compelled to take all necessary precautions to prevent the spread of contagion.

In Japan public health arrangements are centralized in a special department in the Ministry for Home Affairs where all preventive measures, including those against trachoma, are dealt with. In 30 of the 47 provinces into which the country is divided special public health medical officers deal with trachoma, in the other provinces it is carried out voluntarily by doctors.

Gratuitous institutions for the treatment of trachoma cases are established in a given district for a limited period of time which often extends to several years. They then move on to another district with a high trachoma index.

A small proportion of the institutions for the gratuitous treatment of trachoma cases are supported by the provincial authorities. There are also, approximately, a dozen private eye hospitals supported by voluntary contributions. Apart from these, in large cities, the ophthalmological departments of University, Provincial, Municipal and Red Cross hospitals undertake the treatment of the poor.

It is of the greatest interest to learn that persons employed as nurses, hair-dressers, etc., who come into intimate contact with the public are licensed by the Police and if found to be trachomatous are submitted to compulsory treatment until certified to be non-infective.

All men in Japan are twice submitted to an eye examination, first when they have a preliminary military training at the age of 19 years, and again at the recruiting age of 20, the first is by the local physician, and the second by Officers of the Army Medical Corps.

Men and women teachers and school children throughout the country are examined once a year for trachoma by the school medical officer or by an ophthalmologist.

Among the remaining population a general eye examination is carried out only in districts with a high trachoma index.

There is a difficulty in diagnosis in some cases of conjunctival inflammation for medical practitioners who have not had instruction by an expert trachomatologist; this is a world-wide experience. To overcome this, organized post-graduate courses of several weeks' duration have been instituted.

A Japanese organization for the Prevention of Trachoma was created in 1916. This publishes a journal called "Trachoma," sends out lecturers into the provinces, distributes pamphlets dealing with trachoma prophylaxis, organizes a "Trachoma Prevention Day," prepares educative cinema films and provides popular lectures.

Japanese emigrants from home are examined twice before being allowed to embark for destinations abroad. Immigrants into Japan are also examined for active trachoma on arrival.

Professor Miyashita assures us that the various regulations for the suppression of trachoma have been carried out strictly since the passing of the law of 1919. Approximately 10 million persons are examined every year in Japan for trachoma. The total sum disbursed by the provincial and central governments being about £38,660 or yen 760,000 annually.

There is no generalized treatment of trachomatous children in the schools, but this is carried out at certain of the schools and is recognized to be desirable.

On the whole the adoption of the law for the prevention of trachoma has led to appreciable results in the campaign against this disease in Japan. A decline in the trachoma index has been observed in all classes of the population and among all professions. Experience has shown that the measures adopted have been satisfactory.

The author is impressed by the importance of the early incidence of trachoma among infants and the desirability of inaugurating some form of treatment in the family, as this is the chief place where infection occurs, in Japan as in Egypt and Palestine. He hopes to see all the measures which have been briefly indicated here applied with greater strictness.

TRACHOMA IN GLASGOW

Discussion at the International Conference on Trachoma, held in London on April 3, 1935

BY

DR. S. SPENCE MEIGHAN

GLASGOW is the only city in the British Isles where trachoma is a notifiable disease. It was added to the list in 1914 owing to an outbreak of the disease in an industrial school. By the end of 1933 the number of notifications was 1039, but only 613 of these were regarded as definite cases.

The number of cases notified each year is small, but it is difficult to say if the incidence is declining. There is certainly no increase.

Along with notification provision is made for supervision and treatment of the disease by the Public Health Authority. A central dispensary has been established where an ophthalmic surgeon and nurse are attached. The surgeon diagnoses and treats the cases, the nurse visits the homes, keeps contacts under observation and carries out treatment. Cases for indoor and operative treatment are admitted to hospital where there are special beds for their accommodation, under the charge of an ophthalmic surgeon.

The number on the trachoma register at the end of 1934 was 120, and 13 of these were doubtful cases. During the year there were 17 notifications, and 7 of these were definite trachoma cases.

In 1933 it was found that the disease was commoner in females 78-51 males. 59 per cent. under 15 years of age and 80 per cent. under 25 years of age, when the disease was contracted. All cases occurred among the poorer classes. In 1933 as regards intra-domestic infection, there were two instances where two cases occurred in the same family, three instances with three and in one instance there were four in the family. In an analysis of 1466 blind persons occurring in the south-west of Scotland, carried out by Drs. Smith and Marshall, there were 14 cases of blindness due to trachoma.

In Stobhill Hospital, Glasgow, I made an investigation as regards the presence of B. Granulosis (Noguchi). I found that this organism was not present in the cases occurring in this area. It was actually isolated from one case which turned out to be a simple folliculosis.

I regard compulsory notification of the disease as a very important factor in its control, and also the treatment by a special dispensary does much to prevent incapacity and blindness.

I am indebted to the Annual Report of the Medical Officer of Health of Glasgow for the figures given above.

THE CALCIUM CONTENT OF THE SCLEROTIC AND ITS VARIATION WITH AGE

BY

ARNOLD SORSBY, KATHLEEN WILCOX and DORA HAM

LONDON

1. MORPHOLOGICAL CONSIDERATIONS.[1]

Unlike the auditory and olfactory organs, the visual apparatus throughout the vertebrate kingdom does not become encased by bone, itself part of the cranium. Except in some cartilaginous fishes (selachii) the sclerotic coat of the eye is not attached to the skull; where such attachment is present it is by means of a cartilaginous rod joining the sclera to the skull, and developed to a varying degree in different species. The protective covering of the eye is therefore free practically throughout the vertebrate phyllum, but it varies widely in structure in the different classes of vertebrates. Thus in Fishes the sclerotic is fibrous in lampreys, and almost exclusively cartilaginous (with calcification as a senescent change) in Selachii as also in Ganoidei (fishes with enamelled scales or dermal plates), whilst in Teleostei (bony fishes) the sclerotic may be purely fibrous, or fibrous and cartilaginous, or fibrous, cartilaginous and bony, and finally fibrous and bony only; in Dipnoi ("lung fishes") the sclera contains cartilage reaching up to the equator. In Amphibia a fibrous sclerotic is present in many urodela (amphibia in which the larval tail persists in the adult) but some, such as the cryptobranchus, have cartilage of monstrous thickness; in the frog cartilage is present and reaches up to the insertion of the extra-ocular muscles. In Reptilia, the sclerotic generally consists of fibrous tissue and cartilage but it is purely fibrous in snakes, whilst in lizards and turtles bony deposits are present; where cartilage is present in reptiles it varies greatly in thickness at different sites; the fossil skeleton of Ichthyosaurus shows a bony scleral ring. Birds too show considerable variations in the structure of the sclera, fibrous tissue playing the least part in the conformation of the globe; where cartilage is present it is generally thin, and bone is frequently seen towards the limbus and around the entry of the optic nerve ("optic nerve bones"); occasionally the bone takes complicated forms, a roof-tile formation sometimes being present; thick, well differentiated bone is present in all nocturnal birds of prey and in the larger diurnal birds of that kind. It is only in mammals, with the exception of the monotremes, that a purely fibrous sclerotic is present throughout: in the monotremes cartilage like other reptilian characteristics, is present. The fibrous sclera of mammals shows great variations in different orders; it is exceptionally thick in whales.

Whatever the reason for these variations—and no satisfactory explanation is forthcoming for the apparently planless variation in structure—cartilage and bone loom large in the morphological history of the sclerotic. The calcium content of the human sclerotic may therefore present features of interest, whilst a comparison with other tissues as to the variation of the calcium contents with age should also not be devoid of interest.

2. VARIATIONS IN THE CALCIUM CONTENT OF TISSUES WITH AGE.

(1) Total Calcium Content of body.

Calcium rises progressively during foetal life and in extra-uterine life till an adult level is reached and remains constant. This increase is shown by the following summary table, giving the percentage of calcium on a fat-free basis.[2]

	Embryo	Adult
Man (*a*) 35 days ...	0·001	(?) 9·44
(*b*) 3-4 months ...	1·73	
Guinea-pig	1·57	4·82
Rabbit	1·43	4·50
Rat	1·50	3·43
Mouse	1·14	3·94
Dog	2·24	6·34
Cat	2·61	3·53

For the white rat Sherman and MacLeod[3] give the following data as to the increase of the calcium content in extra-uterine life:—

At birth	0·25 per cent.
At 15 days	0·60 „ „
At 30 days	0·70 „ „
At 60 days	0·85 „ „
At 90 days	0·95–1·1 per cent.
Adult	1·0 –1·2 „ „

(2) Calcium Content of individual organs.

(*a*) Bone:—As calcium in the body is largely stored in the bones, it would appear that the data given for the total calcium content of the body apply in general to the bony system.

(*b*) Muscle:—The calcium content of muscle varies with different animals and with different muscles for the same animal. (Katz[4] gives the calcium value for muscle of different mammals as 2-18 mgm. per cent.; Heubner and Rona[4] give a variation of between 3-18 mgm. per cent. for different muscles of the cat). Human muscle shows a decrease of calcium content with age, as is shown by the following table giving percentage of CaO present:—[5]

Premature birth (7 months)	0·03
At 4 years	0·01
Adult	0·01

Contrary percentages are given for muscle of the dog :—[6]

At 1 month	0·010
Adult	0·019

(*c*) Brain :—A marked decrease in the calcium content of the human brain occurs with age.[7]

Percentage of calcium in dry substance of brain :—

Seven months foetus...	0·168
At birth	0·107
At 8 years	0·051

(*d*) Human intestine and liver also show a decrease, falling from 0·02 per cent. at birth to 0·01 per cent at 4 years.[8] On the other hand, lung and heart show an increase in comparing analyses obtained from tissue 9 weeks and 2½ years old :—lung rises from 0·010 to 0·014 and heart from 0·014 to 0·023 per cent.[9]

(*e*) Blood :—That calcium in whole blood and serum decreases with age has been reported by a number of observers. Reviewing the literature and drawing on their own work Greisheimer, Johnson and Ryan[10] conclude the "calcium content [of serum] definitely decreases with age; in women it falls from an empirical average of 11·8 mg. at the age of 12 years to 9·7 mg. at the age of 78. In men it falls from 11·6 mg. at the age of 12 to 10·0 mg. at the age of 78." This sex difference they did not find to be statistically significant.

The decrease in calcium in tissues with age has been stressed by C. I. Parhon and M. Parhon.[11] They give the following results for muscle tissue and blood.

	Ca per 1,000 of dried tissue	
	Blood	Muscle
Guinea-pig : 2½ months	0·40	1·08
34 months	0·29	0·53
Rabbit : 1 month	0·45	1·40
24 months	0·31	0·62

Their results have been confirmed by Cahane[12] who supports their view that the decrease in calcium in tissues with age is accompanied by a loss of water, Calcium acting as a hydrating agent.

3. THE CALCIUM CONTENT OF THE SCLEROTIC AND ITS VARIATION WITH AGE.

Three series of investigations were undertaken. The calcium content of the sclerotic of cats of different ages and in a series of human sclerotics was determined by one of us (K. W.) whilst

a parallel series of human sclerotics was studied by a second observer (D. H.). The methods employed and the detailed results are given in the appendix. The findings are shown in the following summary table.

SCLEROTIC OF CAT

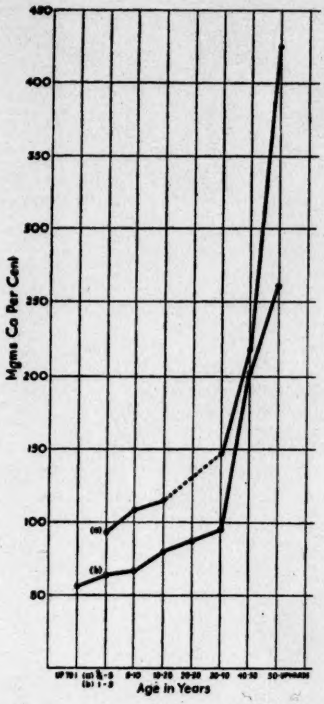
Estimated age of animal	Number of sclerotics	Mean Ca. mg. per 100 gm. dried tissue
Newborn	13	108
One month	26	69
Intermediate between 1-3 months	17	60
Three months	17	51
Intermediate between 3 months and half grown	7	46
Half grown	15	43
Young adult	13	50
Older adult	2	59
Old	3	67
Very old	1	95

HUMAN SCLEROTICS—First series (K.W.)

Age in years	Number of sclerotics	Mean Ca. mg. per 100 gm. dried tissue
9/12 to 5	8	94
5–10	2	108
10–20	10	115
20–30	—	—
30–40	2	149
40–50	4	218
50–60	3	425
Second series (D.H.)		
Up to 1	18	57
1–5	5	65
5–10	9	68
10–20	4	81
20–30	8	88
30–40	10	96
40–50	19	202
50 upwards	25	262

The results for human sclerotic are shown graphically in the following curve. They illustrate a slow rise in calcium till about the age of 30 with an abrupt and continuous rise after that age.

It will be seen that the curves have the same general course but different actual values. The different methods employed and the use of platinum crucibles in one series and silica crucibles in the other may explain the numerical difference in the results obtained.



THE VARIATION WITH AGE OF THE CALCIUM CONTENT OF THE SCLEROTIC.

The upper graph represents the findings in the first series (K.W.), the lower graph in the second (D.H.).

4. DISCUSSION.

These investigations were undertaken to elucidate the problem as to whether a calcium deficiency in the sclerotic might be a factor in the genesis of myopia, an oft-advanced hypothesis which views myopia as a sort of scleral rickets. It cannot be said these results achieve the purpose indicated. Conclusions could only be drawn if comparative data of the calcium content of the sclerotic of known progressive myopic eyes could be submitted. In the nature of things such material is unlikely to be gathered except by the concerted efforts of many observers.

The results submitted do however give some indication as to the normal metabolism of the calcium in the sclerotic and the abrupt rise in the calcium content after middle-age may be of significance in the aetiology of glaucoma.

Summary

1. The morphology of the sclerotic would indicate that calcium is a factor of some significance in the history and possibly the composition of the human sclerotic.

2. Results are given showing that compared to muscle the sclerotic is not excessively rich in calcium.

3. In the sclerotic of the cat calcium was found to decrease progressively from birth till adult life, and to rise subsequently with increasing age.

4. In man the calcium content of the sclerotic rises slowly till about the age of 30, and very abruptly after that.

5. This behaviour is in marked contrast to the progressive decrease with age given by other observers for most other tissue.

6. The possible significance of the results in the genesis of myopia and of glaucoma is indicated.

We wish to express our indebtedness to the late Professor R. Donaldson who had kindly put the post-mortem material of Guy's Hospital at our disposal, and to Dr. D. N. Nabarro for a like service at the Hospital for Sick Children, Great Ormond Street. To Dr. J. H. Ryffel of the Clinical Chemistry Dept. of Guy's we are indebted for the facilities of his laboratory whilst to Dr. W. W. Payne, we are obliged for his kindly interest, helpful criticism and the facilities of his department of Bio-Chemistry at the Hospital for Sick Children. To the *Brit. Jl. of Ophthal.* we are indebted for a grant to cover expenses.

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Appendix

1. *Preparation of Material*:—

(*a*) Sclerotic of cat. The animals were obtained from a dealer who delivered them within 12 hours of their being killed in station for stray and unwanted cats and dogs. The eyes were removed *in toto*, the optic nerve cut flush with the sclerotic, adherent muscle and orbital contents removed, the cornea abscised completely

and the interior of the opened eye scraped as clean as possible, but not washed. An absolutely white surface could not always be obtained, as pigment seems to be incorporated in the sclera of some cats.

(*b*) Human sclerotic. After removing the brain, the roof of the orbit was opened, care being taken to avoid splintering and scattering of bone dust. As much as possible of the posterior segment of the globe was removed, leaving the cornea and iris *in situ*.

2. *Methods of estimating the Calcium* :—

(*a*) Cats' and first series of human sclerotic (K. W.).

The material was dried to constant weight in a steam oven and ashed in a platinum crucible. The ash was dissolved in 1 c.c. concentrated hydrochloric acid and the solution transferred to a conical centrifuge-tube. The P_h was then adjusted and the calcium determined by precipitating it as oxalate, washing it three times with 2 per cent. ammonia solution, dissolving in dilute sulphuric acid and titrating with N/100 potassium permanganate whilst hot.

(*b*) Human sclerotics (second series, D. H.).

The material was dried as in the previous method but ashed in silica crucibles as platinum was not available. The ash was dissolved in 0·5 c.c. Normal HCl, which was evaporated off on a boiling water bath. The residue was redissolved in 0·5 c.c. N/10 HCl and washed into a special 4 c.c. hard glass centrifuge tube with 3 lots of dist. water 0·5, 0·3 and 0·2 c.c. respectively. This solution was then neutralised with Normal NaOH using Phenol Red as indicator and the tube then filled with a saturated solution of ammonium oxalate mixed and allowed to stand overnight. In the morning the tubes were centrifuged for 20 minutes, the supernatent fluid removed by means of a suction pump and the precipitate washed with 2 c.c. of saturated ammonium oxalate solution (without disturbing precipitate) and centrifuged for another 5 minutes. This washing was carried out three times. After the final removal of the supernatent fiuid the tubes were dried in a water oven and then heated in a flame driving off the ammonium oxalate, and decomposing the calcium oxalate to carbonate, overheating being avoided. When cool the residue was dissolved in 1 c.c. of N/50 HCl and back titrated to P_h 4·0 with N/50 NaOH in a micrometer syringe (Trevan) using ·075 c.c. of Brom. Phenol Blue as indicator.

3. *Detailed Results* :—

(*a*) Cats.

(*b*) Human (First series, K. W.).

(*c*) Human (Second series, D. H.).

(*a*) CATS (K.W.)

These sclerotics were analysed in batches of approximately the same age.

Estimated age	No. sclerotics in batch	Calcium mgm. per 100 gm. dried tissue	Mean
Newborn	13	108	108
1 month	6	71	69
	6	69	
	8	69	
	6	70	
Intermediate between 1 and 3 months	5	63	60
	12	58	
3 months	3	50	51
	3	51	
	5	52	
	6	54	
Intermediate between 3 months and half grown	4	47	46
	3	46	
Half grown	2	47	43
	3	42	
	4	40	
	4	39	
	2	50	
Young adult	1	55	50
	1	51	
	2	53	
	2	62	
	2	47	
	2	44	
	1	45	
	1	48	
	1	46	
Older adult	1	59	59
	1	59	
Old	1	77	67
	1	70	
	1	55	
Very old	1	95	95

(*b*) HUMAN (First series, K.W.)

Age in years	Calcium mgm. per 100 gm. dried tissue	Mean
$\frac{9}{12}$	86	86
$1\frac{1}{12}$	92	91
	90	
$1\frac{9}{12}$	92	100
	108	
5	105	101
	103	
	95	
$7\frac{6}{12}$	107	107
8	110	110
11	99	99
$13\frac{6}{12}$	79	76
	74	
15	130	125
	120	
16	100	113
	100	
	141	
18	128	128
19	148	148
34	144	149
	155	
43	206	206
44	210	210
47	250	240
	230	
53	390	400
	410	
60	450	450

As the calcium content varied considerably with sclerotics of the same age, the results, for plotting purposes, were divided into groups.

Age in years	No. determinations	Calcium
$\frac{9}{12}$–5	8	94
6–10	2	108
10–20	10	115
20–30	Nil	—
30–40	2	149
40–50	4	218
50–60	3	425

(*c*) HUMAN. (SECOND SERIES, D.H.)

AGE: Up to 12 months				1–5 years				5–10 years				10–20 years			
P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %
208	·1505	·1040	69	303	·3165	·1970	62	519	·1675	·1248	74·5	535	·3920	·2750	70·2
,,	·1468	·0676	46	H.S.C. 1	·1430	·0660	46	180	·3190	·1760	55 5	545	·1768	·1400	79·2
42	·1835	·1068	58·2	,, 9	·1010	·0624	61·8	453	·1650	·1820	110	94	·1725	·1628	94·4
,,	·1870	·0976	52·2	,, 15	·1335	·0824	61·7	162	·2045	·1344	65·7	H.S.C. 5	·0940	·0768	81·7
69	·1630	·1136	69·7	,, 17	·1265	·1204	95 2	,,	·1940	·1360	70	No. of	cases —	**4**	
,,	·1635	·1029	62·4	No. of	cases —	**5**		36	·2535	·1860	73·4		Average	**= 81·4**	mgm. %
108	·1500	·0977	65·1		Average	**= 65·4**	mgm. %	,,	·2235	·1488	66·6				
,,	·1505	·0908	60·3					H.S.C. 2	·1270	·0512	40·3				
H.S.C. 3	·1160	·0780	67·2					,, 16	·1225	·0736	60				
,, 4	·1210	·0400	33					No. of	cases —	**9**					
,, 6	·0905	·0464	51·3						Average	**= 68·5**	mgm. %				
,, 7	·1080	·0292	27												
,, 8	·1010	·0644	63·7												
,, 10	·0680	·0576	84·7												
,, 11	·1050	·0928	88·4												
,, 12	·1050	·0380	36·2												
,, 13	·1185	·0584	49·3												
,, 14	·1005	·0412	41												
No. of	cases —	**18**													
	Average	**=57**	mgm. %												

(*c*) HUMAN. (SECOND SERIES, D.H.)—*continued*

20–30 years				30–40 years				40–50 years				50-upwards			
P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %
1	·3200	·2240	70	2	·3200	·2240	70	3	·3200	·2240	70	4	·3200	·2240	70
5	·3200	·2240	70	6	·3200	·2240	70	7	·3200	·2240	70	8	·3200	·2240	70
9	·3200	·2240	70	10	·3200	·2240	70	11	·3200	·2240	70	12	·3200	·2240	70
13	·3200	·2240	70	14	·3200	·2240	70	15	·3200	·2240	70	16	·3200	·2240	70
17	·3200	·2240	70	18	·3200	·2240	70	19	·3200	·2240	70	20	·3200	·2240	70
21	·3200	·2240	70	22	·3200	·2240	70	23	·3200	·2240	70	24	·3200	·2240	70
25	·3200	·2240	70	26	·3200	·2240	70	27	·3200	·2240	70	28	·3200	·2240	70
29	·3200	·2240	70	30	·3200	·2240	70	31	·3200	·2240	70	32	·3200	·2240	70
33	·3200	·2240	70	34	·3200	·2240	70	35	·3200	·2240	70	36	·3200	·2240	70
37	·3200	·2240	70	38	·3200	·2240	70	39	·3200	·2240	70	40	·3200	·2240	70
41	·3200	·2240	70	42	·3200	·2240	70	43	·3200	·2240	70	44	·3200	·2240	70
45	·3200	·2240	70	46	·3200	·2240	70	47	·3200	·2240	70	48	·3200	·2240	70
49	·3200	·2240	70	50	·3200	·2240	70	51	·3200	·2240	70	52	·3200	·2240	70
53	·3200	·2240	70	54	·3200	·2240	70	55	·3200	·2240	70	56	·3200	·2240	70
57	·3200	·2240	70	58	·3200	·2240	70	59	·3200	·2240	70	60	·3200	·2240	70
61	·3200	·2240	70	62	·3200	·2240	70	63	·3200	·2240	70	64	·3200	·2240	70
65	·3200	·2240	70	66	·3200	·2240	70	67	·3200	·2240	70	68	·3200	·2240	70
69	·3200	·2240	70	70	·3200	·2240	70	71	·3200	·2240	70	72	·3200	·2240	70
73	·3200	·2240	70	74	·3200	·2240	70	75	·3200	·2240	70	76	·3200	·2240	70
77	·3200	·2240	70	78	·3200	·2240	70	79	·3200	·2240	70	80	·3200	·2240	70
81	·3200	·2240	70	82	·3200	·2240	70	83	·3200	·2240	70	84	·3200	·2240	70
85	·3200	·2240	70	86	·3200	·2240	70	87	·3200	·2240	70	88	·3200	·2240	70
89	·3200	·2240	70	90	·3200	·2240	70	91	·3200	·2240	70	92	·3200	·2240	70
93	·3200	·2240	70	94	·3200	·2240	70	95	·3200	·2240	70	96	·3200	·2240	70
97	·3200	·2240	70	98	·3200	·2240	70	99	·3200	·2240	70	100	·3200	·2240	70
101	·3200	·2240	70	102	·3200	·2240	70	103	·3200	·2240	70	104	·3200	·2240	70
105	·3200	·2240	70	106	·3200	·2240	70	107	·3200	·2240	70	108	·3200	·2240	70
109	·3200	·2240	70	110	·3200	·2240	70	111	·3200	·2240	70	112	·3200	·2240	70
113	·3200	·2240	70	114	·3200	·2240	70	115	·3200	·2240	70	116	·3200	·2240	70
117	·3200	·2240	70	118	·3200	·2240	70	119	·3200	·2240	70	120	·3200	·2240	70
121	·3200	·2240	70	122	·3200	·2240	70	123	·3200	·2240	70	124	·3200	·2240	70
125	·3200	·2240	70	126	·3200	·2240	70	127	·3200	·2240	70	128	·3200	·2240	70
129	·3200	·2240	70	130	·3200	·2240	70	131	·3200	·2240	70	132	·3200	·2240	70
133	·3200	·2240	70	134	·3200	·2240	70	135	·3200	·2240	70	136	·3200	·2240	70
137	·3200	·2240	70	138	·3200	·2240	70	139	·3200	·2240	70	140	·3200	·2240	70
141	·3200	·2240	70	142	·3200	·2240	70	143	·3200	·2240	70	144	·3200	·2240	70
145	·3200	·2240	70	146	·3200	·2240	70	147	·3200	·2240	70	148	·3200	·2240	70
149	·3200	·2240	70	150	·3200	·2240	70	151	·3200	·2240	70	152	·3200	·2240	70
153	·3200	·2240	70	154	·3200	·2240	70	155	·3200	·2240	70	156	·3200	·2240	70
157	·3200	·2240	70	158	·3200	·2240	70	159	·3200	·2240	70	160	·3200	·2240	70
161	·3200	·2240	70	162	·3200	·2240	70	163	·3200	·2240	70	164	·3200	·2240	70
165	·3200	·2240	70	166	·3200	·2240	70	167	·3200	·2240	70	168	·3200	·2240	70
169	·3200	·2240	70	170	·3200	·2240	70	171	·3200	·2240	70	172	·3200	·2240	70
173	·3200	·2240	70	174	·3200	·2240	70	175	·3200	·2240	70	176	·3200	·2240	70
177	·3200	·2240	70	178	·3200	·2240	70	179	·3200	·2240	70	180	·3200	·2240	70
181	·3200	·2240	70	182	·3200	·2240	70	183	·3200	·2240	70	184	·3200	·2240	70
185	·3200	·2240	70	186	·3200	·2240	70	187	·3200	·2240	70	188	·3200	·2240	70
189	·3200	·2240	70	190	·3200	·2240	70	191	·3200	·2240	70	192	·3200	·2240	70
193	·3200	·2240	70	194	·3200	·2240	70	195	·3200	·2240	70	196	·3200	·2240	70
197	·3200	·2240	70	198	·3200	·2240	70	199	·3200	·2240	70	200	·3200	·2240	70

(c) HUMAN. (SECOND SERIES, D.H.)—*continued*

20–30 years				30–40 years				40–50 years				50-upwards			
P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. of eye	mgms. Ca. in eye	mgms. Ca. %	P.M. No.	Grs. wt. in eye	mgms. Ca. in eye	mgms. Ca. %
528	·3600	·2720	75·5	472	·1685	·2720	161	468	·1945	·2280	117	478	·2438	1·2350	506
31	·1500	·1500	100	25	·1485	·1636	110	477	·2098	·1880	89	20	·1880	·3160	168
,,	·1510	·1552	103	,,	·1750	·1510	86·2	452	·2060	·4660	226	33	·2055	·1834	89·7
32	·2182	·2660	122	38	·1855	·1284	69·7	451	·2193	·9640	439	,,	·1857	·2414	130
,,	·2013	·1856	92	47	·1650	·0896	54	,,	·1970	·3370	176	34	·1742	·4562	262
63	·1500	·1328	88	,,	·1375	·0960	70	21	·1950	·5600	287	37	·1800	·9073	504
,,	·1520	·1304	86	95	·1995	·1548	77·6	,,	·1775	·4374	246	,,	·1700	1·0060	592
90	·1930	·2240	115	,,	·2145	·1760	82	43	·1815	·5828	321	39	·2340	·6708	286
No. of	cases — **8**			102	·1700	·2496	146·8	,,	·1840	·5336	290	,,	·1820	·4224	232
	Average	= **87·7**	mgm. %	,,	·2040	·2016	99	44	·1595	·2222	139	41	·1875	·3296	176
				No. of	cases — **10**			,,	·1505	·1856	123	,,	·2000	·4124	206
					Average	= **95·6**	mgm. %	45	·1610	·2024	126	48	·1635	·6464	395
								,,	·1640	·1940	118	,,	·1805	·9008	499
								46	·1425	·3600	252	64	·1755	·2016	115
								,,	·1610	·1496	93	,,	·1625	·2852	175
								72	·2123	·5632	265	65	·1425	·4220	296
								,,	·1867	·4664	250	,,	·1225	·4824	394
								106	·2005	·3504	174·7	68	·2040	·7208	347
								,,	·1728	·1400	81	,,	·1960	·5968	305
												89	·1693	·1387	82
								No. of	cases — **19**			,,	·1975	·3440	174
									Average	= **202**	mgm. %	110	·2170	2820	130
												,,	·2120	·5696	268·6
												116	·1810	·1640	90·6
												,,	·1460	·1228	84·1
												No. of	cases — **25**		
													Average	= **262**	mgm. %

THE CLASSIFICATION OF THE CAUSES OF BLINDNESS

BY

A. F. MACCALLAN, C.B.E.

THE preparation of a scheme for the classification of the causes of blindness which can be adopted internationally is a very important matter. It is also a very difficult one for two reasons, first because a scheme of classification is already in use in some countries, and secondly because the same definition of blindness is not universal.

It is understood that what is being considered is a scientific classification for the use of ophthalmic surgeons, and not a scheme for the registration of those who have so little visual acuity as to need, if children, a special form of education, or if adults, financial assistance to enable them to earn a living or to exist without misery.

It is therefore necessary to include in the classification cases of monocular blindness, for if this is not done the ocular disasters which may result from war, from following certain trades, from engaging in certain sports and from birth injuries will be omitted. This was referred to in the interesting scheme of classification which was drawn up by Professor Marquez and presented to the XIV International Congress of Ophthalmology.

The loss of the sight of one eye is not of insuperable disadvantage to a banker or a stock-broker or a grocer, but to a bricklayer or a chauffeur or an ophthalmic surgeon it may be the cause of the loss of his livelihood.

In a country where there has been for many years a well-understood definition of blindness and scheme of classification it is undesirable that these should be changed. I instance Egypt where a quarter of a century ago I adopted Trousseau's definition "inability to count figures at a distance of one metre." The scheme of classification which I arranged is shown in the annex as well as the statistics for the years 1908 and 1932. These refer to patients who were blind in either one or both eyes.

It is seen from these statistics that the incidence of blindness in one or both eyes among patients presenting themselves for treatment at the Ophthalmic Hospitals of Egypt has been reduced in a period of 25 years from approximately 13 per cent. to approximately 7 per cent.

If I were arranging a system of classification for Egypt at the present time I should make some changes in the schedule, nevertheless I consider that there is a great advantage in retaining a

classification by which the amount of blindness in the country can be gauged from year to year, and which is not too complicated for compilation by the medical officers.

Three different systems of classification of the causes of blindness have been brought to my notice, and there may be others with which I am unacquainted. These are (1) that of Professor van Duyse, (2) that of Professor Marquez, and (3) that contained in the Report of the Prevention of Blindness Committee, London, 1931.

I am sure we are all greatly indebted to Professor van Duyse for the trouble he has taken and for the high scientific ability he has shown in the scheme of classification he has proposed. I think for a detailed scheme it would be difficult to arrange anything more all-embracing. However I do not think that hospital medical officers would have the time or patience to carry it out. With the brief classification I am not so entirely satisfied.

The scheme proposed by Professor Marquez seems to be highly original and useful. As regards inscription it can be carried out quite well by any ophthalmic surgeon, but in the preparation of statistics at the end of a year, the services of highly expert persons would be required.

I must give my opinion that up to the present the classification already adopted by the Prevention of Blindness Committee in London is the most useful for my own country at any rate.

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CAUSES OF BLINDNESS

AT THE OPHTHALMIC HOSPITALS OF EGYPT

	YEARS 1908	1932
TOTAL NUMBER OF PATIENTS EXAMINED	19,614	737,990
A.—Congenital		3
B.—Acquired:—		
I.—Conjunctivitis resulting in:—		
(*a*) Total corneal opacity	311	16,112
(*b*) Shrunken globe	810	17,320
(*c*) Secondary glaucoma	459	8,232
(*d*) Other conditions	332	1,610
II.—Fundus:—		
(*a*) Optic atrophy	32	150
(*b*) Optic neuritis and papilloedema	—	19
(*c*) Retinitis pigmentosa	4	41
(*d*) Detachment of retina	—	63
(*e*) Other diseases of fundus	34	205
III.—Glaucoma, primary:—		
(*a*) Monocular	131	3,007
(*b*) Binocular	253	2,290
IV.—Injury	15	349
V.—Operation	41	40
VI.—Infectious diseases	15	27
VII.—Iritis, endogenous	48	466
VIII.—Various	39	1,181
Total excluding operable cataracts	2,524	51,116
Approximate percentage of blindness among all patients examined	13	7

CORNEAL GRAFTING—REPARATIVE AND OPTICAL

BY

LIEUT.-COL. R. E. WRIGHT, C.I.E., I.M.S.

SUPERINTENDENT, GOVERNMENT OPHTHALMIC HOSPITAL, MADRAS

IN corneal grafting the ideal end is a clear transplant of ample dimensions. Various methods have been devised and tried from time to time in ophthalmological centres throughout the world with limited success, although Elschnig has had brilliant practical results in man in a number of cases. Recently Tudor Thomas, working at first with rabbits, and adopting a modification of the circular graft technique, employed it successfully in man in a few cases. I have been interested in corneal grafting for a considerable time, more particularly in larger grafts for which experimental instruments had been designed locally, but a finished armamentarium was not to hand, and the matter was out of mind, when a case of intermittent corneal fistula came before me for treatment. Corneal ulcer with Descemetocele and fistula is sometimes most rapidly and successfully treated by a thin graft on a suitably prepared bed, *e.g.*, a conjunctival flap, or a Thiersch skin graft used with a contact glass or paraffin shell as described by me elsewhere; but on this occasion it occurred to me that a corneal graft, if successful, might eventually give a better optical result. The base of the Descemetocele was about 1·5 mm. in diameter, and the epithelialized sides of the ulcer shelved gradually up all round to corneal surface level. The detail of the grafting was as follows:—

The graft was taken from the cornea of a blind glaucomatous eye. An ordinary 2 mm. sclero-corneal trephine blade was first used to demarcate a disc to a uniform depth of about one-third the thickness of the cornea, then sloped to about 45° and rotated so as to cut through at one point. With a small Graefe's knife the disc was cut out, its edge of such a bevel that the endothelial aspect of the disc was distinctly less than 2 mm. It was transferred with due precautions as regards traumatism to a watch glass of olive oil and left there during the short time it took to prepare its bed in the fistulous eye. A 2 mm. trephine blade was employed to demarcate a circular cut around the healing edge of the ulcer and 1·5 mm. blade used to cut through at the base of the Descemetocele. Between these two circular incisions a bevelled edge was carefully cut with fine scissors. The graft was transferred from the watch glass with a smooth spatula. The retaining sutures, loosely placed in position beforehand, were then tightened over the graft. They were planned after the manner of Tudor Thomas. The terminal exits of the bites of these sutures in the cornea were

close to the corneo-scleral junction. The thread used was fine silk sterilized in wax; the needles, Barraquer's fully curved; eyed, 7mm. point to eye. Liquid paraffin with atropine was instilled into the eye, and both eyes covered with vaseline lint and bandaged. On the fourth day the eye was examined. It was obvious that the graft had taken, the chamber had formed, and the epithelium was continuous over the junction. The relevant case notes are given on page 344. As an optical achievement the operation was a failure, but as a reparative procedure a success.

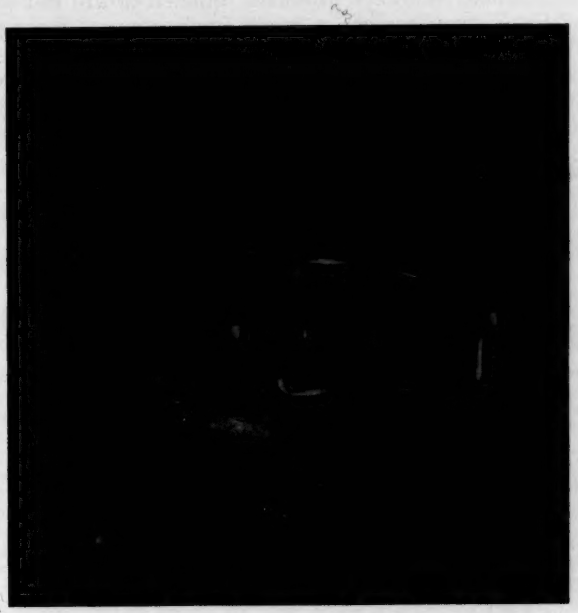
A second case illustrates three important features in connection with corneal grafting:—

1. Anterior synechiae are not necessarily a contraindication to operation.
2. Large circular grafts may be used with as great ease as small ones, and with as good a chance of a "take."
3. An eye blind of glaucoma is capable of furnishing a graft. (This is important in India where such material is plentiful.)

The patient was a young man admitted on April 1, 1934, practically blind with corneal leucomata, the result of congenital syphilis. His vision in each eye was hand movements close to face; he could not get about alone. The corneal opacities were dense, except at the extreme periphery. With the corneal microscope and corneo-scleral illumination it was possible to make out that the right anterior chamber was of about normal depth, the pupil round and active, while the left was irregularly shallowed on account of anterior synechiae. On this occasion it was determined to use larger trephines locally obtained of 3 to 9 mm. diameter. The right eye was first dealt with. The graft was taken from a patient whose eye was blind of glaucoma. It was so cut that one edge impinged towards the limbus on the zone of vascular arcades for reasons which are opposed in theory to those of certain other workers. The graft was taken *in situ* from an eye prepared for enucleation; this was carried out by another operator subsequent to the removal of the disc. A 5 mm. trephine blade was used to a uniform depth of 1 mm. and then the trephine tilted so as to cut through on the bevel at one point. The disc was removed with knife and scissors maintaining a fairly steep bevel, so that the endothelial diameter of the disc was slightly less than the surface diameter. The disc was placed in olive oil. The trephine hole in the leucomatous eye was placed in the centre of the cornea. It was fashioned in the same way with a 4 mm. trephine, the sutures being loosely placed beforehand. In this case the graft was definitely bigger than the hole, contrary to Tudor Thomas' technique, but in conformity with the general principles of plastic work. The stitches were pulled moderately tight and the eye dressed as in the former case. The eye was opened on the fourth

day. The graft had apparently taken. It was re-dressed with atropine-iodoform ointment and vaseline lint and both eyes kept bandaged till the seventh day when the stitches were removed. At this time the graft looked nice and clear, the chamber had formed, the pupil was round, the iris free and the patient could count fingers. The subsequent history is given in the case report.

The left cornea was dealt with on August 25, 1934, subsequent to suitable operative re-formation of the anterior chamber. On



Photograph of a 9 mm. graft on the 9th day.

this side it was determined to disregard the opinion of certain surgeons with regard to the unsuitability of cases with anterior synechiae. Our first aim was the reconditioning of the anterior chamber. This is a recognized procedure in this clinic and is one of our common operative methods. It consists in making a small keratome incision (2 mm. inside length) and sweeping a suitable spatula over the synechiae. The spatula designed by Dr. Koman Nayar made locally is best for this purpose. (Messrs. Weiss have put a somewhat similar instrument on the market.) An iridectomy had to be performed owing to a prolapse following the freeing of synechiae. The grafting was carried out as in the right eye, there was practically no difference in technique except

that on this occasion 9 and 8 mm. trephines were used. With the larger discs it is obviously an advantage to have the disc larger than the hole. An aged blind glaucomatous donor was again utilized. Eleven days after the operation the graft was transparent, the chamber formed and clear, the fundus easily seen and the visual acuity 6/60 with correction. There was soon what we considered to be a recrudescence of his ocular syphilis, and deposits formed on the endothelium. Intensive treatment was employed as indicated in the case notes. The eye gradually quieted down, but left him with relatively poor vision, a great improvement, however, on his previous state.

In the right eye the cornea around the graft which had been very opaque gradually cleared, in the way noted by Elschnig in cases of interstitial keratitis, until eventually the extreme periphery became clearer in parts than the graft.

Case 1.

Hindu, female, aged 30 years, admitted August 26, 1933, trachoma with pannus both eyes, ulcer left eye; perforated, treated for trachoma.

September 30, 1933. Trachoma improved, ulcer healing but fistulous, Descemetocele left eye middle of lower quadrant; vision, counts fingers at a foot.

October 2, 1933. Corneal graft from a glaucomatous blind eye.

October 5, 1933. Eye dressed, stitches in position, chamber formed, graft taking.

October 9, 1933. Graft has taken, chamber full, stitches removed, graft relatively clear.

October 11, 1933. Small grey opacity in centre of graft, considerable vascularization from every quarter to the centre, junction red with new vessels, graft itself relatively clear, line of demarcation with cornea opaque and pink, anterior chamber full.

October 13, 1933. Central area of opacity larger, looks like necrosis starting in centre, the whole cornea is more opaque, pannus generalized.

October 20, 1933. Centre of graft clearer, yellow infiitration at the junction of graft and cornea on the nasal side.

October 27, 1933. Vascularization of the graft increasing; vision, fingers at 0.5 metre.

December 12, 1933. Webster's operation for commencing entropion, upper lid.

January 24, 1934. A point of iris adhering to the graft junction below.

January 30, 1934. Adhesion broken down through small limbal keratome incision.

February 5, 1934. Anterior synechia free, chamber full, graft clearing from periphery, some iris pigment on endothelium below.

May 11, 1934. Graft looks translucent on retro-illumination, but many fine vessels reaching in from periphery—opalescent to naked eye slightly more so than cornea above which has cleared with treatment. Cannot estimate vision through graft on this account. It has formed an integral part of cornea more opaque than that above, more translucent than that below.

Case 2. *Right eye.*

Hindu, male, aged 28 years, admitted April 1, 1934, dense corneal leucomata both eyes, clearer at extreme periphery; vision, hand movements; projection good in all directions. Corneal microscope examination (limbal illumination), anterior chamber about normal depth, pupil roundish, active. Patient cannot get about alone.

April 7, 1934. Corneal grafting performed right eye, a 4 mm. central disc removed and 5 mm. eccentric graft inserted.

April 10, 1934. Eye dressed, graft in position, junction vascularized, graft clear, chamber formed—apparently "a take," atropine ointment and iodoform.

April 13, 1934. Dressing removed, stitches intact, graft in position, fairly clear, pupil round, chamber formed, stitches removed, atropine ointment and iodoform, patient able to count fingers.

April 21, 1934. Corneal microscope examination: Pupil round—half dilated, vessels growing into graft from the junction; back of graft appears to have a greyish infiltration or deposit at the periphery—clear in centre. The graft appears swollen, atropine thrice daily, neosalvarsan 0.3 gram intravenously, and 1 c.c. hypoloid bismuth intramuscularly three days later.

April 26, 1934. Neosalvarsan 0.45 intravenously.

April 28, 1934. Corneal microscope: A fine yellowish-grey deposit all over back of graft. In front of this, graft still clear, a denser nodular infiltration towards "3 o'clock" with invasion of brush-like vessels. Right eye vision, fingers at one foot. Continue neosalvarsan and bismuth.

May 23, 1934. Folds of Descemet's membrane, yellowish-grey deposits on endothelium, anterior to this, graft clear at centre, but invaded by fine vessels and haze at periphery.

Up to now has had six injections of arsenic and six of bismuth. Vision, fingers at one foot. Can make out shape of individuals and gets about the hospital.

June 23, 1934. Graft still shows endothelial deposit and peripheral haze, counts fingers at one foot, surface of graft smooth and continuous with general curve of cornea. Allowed to go home for a time prior to having the other eye grafted.

Left eye.

Returned July 9, 1934. Vision, hand movements, with limbal illumination. Corneal microscope reveals anterior synechiae, chamber shallow, irregular in depth, shape of pupil not determined, had two injections of neosalvarsan each 0.45 grm. and 1 c.c. of hypoloid bismuth (0.2 grm. metal) in next 12 days.

July 21, 1934. Anterior synechiae freed through keratome incision in superior temporal quadrant, by our usual technique using Nayar's spatula.

July 22, 1934. Iris prolapsed, prolapse excised, atropine and yellow oxide.

July 28, 1934. Eye quiet.

August 1, 1934. Corneal microscope retro-illumination: Chamber full, coloboma clear, released eye, continued atropine, put on Donovan's solution and potassium iodide.

August 16, 1934. Stopped Donovan's solution.

August 17, 1934. Neosalvarsan 0.45 gram.

August 20, 1934. Hypoloid bismuth 1 cc.

August 24, 1934. Neosalvarsan 0.45 gram.

August 25, 1934. Grafted. On this occasion 8 and 9 mm. trephines were used, the graft taken from blind glaucomatous patient.

August 29, 1934. Graft in position.

August 31, 1934. Stitches removed, graft clear, pupil half dilated, round, pillars of coloboma free, anterior chamber normal depth.

September 3, 1934. Left eye vision, fingers at 3 metres. With ophthalmoscope, corneal refraction somewhat irregular, disc vertically oval, fundus normal, graft quite clear to naked eye; with the corneal microscope the graft is clear and its edges sharp and opaque except in the inferior nasal quadrant where there is a slight haze and trace of blood in the section. There are pigment deposits on the anterior lens capsule in the coloboma. Photograph taken of graft. Eye left free in Kirkpatrick's goggles.

September 5, 1934. Left eye vision, with -0.5 D. sph. $= 6/60$.

September 6, 1934. Eye irritable, fine deposits on endothelium, leeches. 0.45 neosalvarsan.

September 7, 1934. Much watering, iritic pain. Hot compresses, atropine, deep cyanide of mercury (5 m. of 1/4,000), sodii salicyl 1 gr. per pound body weight, blue pill gr. 4, followed by mag. sulph.

September 9, 1934. Eye quieter, faint haze advancing over 2/3rd of graft, starting from the inferior nasal quadrant. Milk injection 5 c.c., sub-conjunctival saline.

September 10, 1934. Milk injection 5 c.c., leeches. Uniform haze of graft. Hypoloid bismuth 1 c.c.

September 12, 1934. Milk injection 10 c.c. Two-thirds of graft becoming opaque, sub-conjunctival saline, intravenous injection of citrated malarial blood. (Had good rigors 17th, 18th, 19th, 20th, 21st, 22nd, 23rd—stopped the malaria 24th.)

September 13, 1934. Hot compresses, leeches. Haze of graft throughout, denser inferior nasal quadrant.

September 15, 1934. Graft clearing in superior temporal quadrant.

September 17, 1934. Sub-conjunctival saline, atropine, dionine.

September 17 to September 24, 1934. In bed with malaria.

October 7, 1934. Started bismuth and arsenic injections again, dionine, atropine locally, and yellow oxide.

October 24, 1934. Eye quiet; right eye vision, fingers at 6 inches; left eye vision, fingers at one foot. Continue arsenic and bismuth, atropine, dionine, yellow oxide and massage, with sub-conjunctival salines.

November 8, 1934. Corneal microscope: Some cloudy opacity on the endothelium, and vessels invading the graft in its nasal half, no vessels temporal side. The opacification has taken place in the posterior part of graft, the substantia is clear. Continue dionine and yellow oxide, arsenic and bismuth.

December 12, 1934. During the past month, in addition to deposits on the endothelium and a deep haze, the epithelium developed several bullae, these subsided with massage, dionine and irrigation.

Present vision: Right eye, fingers at two feet; left eye, 1/60. Tension normal each eye, eyes quiet.

I do not imagine it is very much more difficult to get a large corneal graft to take in an eye uncomplicated by trachoma or congenital syphilis, *i.e.*, an avascular eye, than in the above types of case, although, of course, the leucoma of congenital syphilis is the ideal soil to work on, for the fairly obvious reason that capillary proliferation up to the junction can and does take place rapidly. To obtain a high percentage of uniformly translucent large grafts is probably a thing of the future, but to give a patient previously blind and unable to get about, enough vision to walk about without aid, does not appear to present any peculiar difficulty. Successful corneal grafting to the extent indicated ought to be within the powers of any ophthalmic surgeon experienced in plastic methods. There is no difficulty about it, nor does it appear to require either the elaboration of technique or the preliminary practice on animals, indicated in an annotation in the *Brit. Med. Jl.* of May 26, 1934. It is not nearly such a difficult procedure as a Wheeler's whole lower lid Wolfe graft. In the latter the maintenance of uniform pressure over a thin flimsy skin graft on an elastic bed is a work of art which few can acquire. In corneal grafting, uniform pressure—the secret of successful grafting—tends to be maintained by the lid pressure against the fluid intraocular bed, without elaborate aids from the surgeon. The large grafts referred to above were cut with trephines selected from a nest of ordinary steel cylinders. Since then Messrs. Down Brothers have placed on the market, at my suggestion, a more elaborate nest of trephines. The needle holder made for me by Weiss for corneal suture work is well adapted for use with the Barraquer needles.

I must thank my colleague, Dr. K. Koman Nayar, for his suggestions and advice in the elaboration of details and help in the performance of various modifications of corneal plastic surgery, and Dr. V. Narayanaswami Pillai for his post-operative care of patients and their general treatment.

I must confess to failure so far in what has been another

important modification—namely, the excision of complete or partial nipple-shaped corneal staphylomata and their substitution by large or complete corneal grafts. Since I described what is perhaps the best method of dealing with corneal staphylomata (*Arch. of Ophthal.*, 1925, Vol. III, No. 2), I have been anxious to develop a better optical procedure in such cases. I feel sure that successful excision of complete corneal staphylomata—selected with regard to the condition of the posterior segment—and their replacement by clear or translucent cornea is only a matter of time. Our ideas on the subject are much more defined and our experience much greater than when the article referred to was written.

While preparing this note for publication, the *Amer. Jl. of Ophthal.* for October came to hand with an article by Castroviejo which shows that there are various means of accomplishing corneal grafting, but that the best has not yet been evolved. In the same journal the consulting editor discusses professional publicity. This coincidence, even if unintentional, prompts me to say that it is a pity that corneal grafting in England should have received such a vast amount of notice in the daily and popular pictorial lay press in the past year. I gather that the lay press in other parts of the world blindly followed suit. The press in India was no exception and agents seeking news on this subject had to be dealt with rather drastically.

ANNOTATIONS

Blindness in Hereditary Ocular Disease

In the third of the Dr. Elizabeth Matthai lectures, 1933-34 (Madras University), Lt.-Col. R. E. Wright enumerates a number of hereditary ocular diseases which he claims are preventible if parenthood is abstained from by the affected individuals and by those relatives who, although unaffected themselves, are liable to transmit hereditary disease in some instances.

The publication in these lectures of Wright's observations and ideas on this difficult subject comes at a time when considerable interest is being centred around the means of preventing blindness. The problem of sterilization of the subjects of hereditary ocular diseases has recently been raised by Myles Bickerton in the columns of the *Brit. Med. Jl.*, 1934. It is not surprising that, in a matter of such national and social importance as this, disputes have arisen between persons whose enthusiasm to attempt the absolute elimination of this group of diseases is in conflict with others who, also failing to hold views that savour of scientific balance, pass to the other extreme and complacently

disregard even the most obvious cases in which some measure of prevention would save the world and the affected individuals from much unnecessary suffering.

The Risley pedigree is quoted by Myles Bickerton in which one man who was blind with aniridia had 13 children similarly affected, 61 out of 63 grandchildren and 39 out of 42 great grandchildren affected. This single individual in the course of 3 generations produced 113 cases of blindness. This pedigree appears on the surface to be incredible, but if thoroughly authenticated it affords an argument in favour of sterilization in such cases. Another example is the high incidence of glioma retinae in some families and affecting several generations. Between these and other extreme cases there is a range of disorders some of which result in blindness, some in seriously impaired vision and in others the vision, although defective, does not interfere with them living a reasonably contented life and enjoying at least some of the things for which eyesight is essential.

Wright quotes the British Medical Journal with reference to the reports of the Prevention of Blindness Committee of the Union of Counties Association for the Blind (Great Britain) issued in 1934 on hereditary blindness, and comments that in these reports the recommendations that persons affected by certain hereditary ophthalmic disorders or in families where these occur or are likely to be transmitted, the words 'abstain from' parenthood are perhaps a little conservative and from his experience of the "criminal carelessness of certain parents" he would feel more inclined to substitute 'be restrained from' parenthood. Wright is quite definite in his belief that birth control measures are impracticable for the uneducated masses in India and therefore has no hesitation in recommending sterilization as the only certain means to prevent propagation of defectives.

This subject abounds with difficulties and even the reports of the genetic experts from the Galton Eugenics Laboratory admit that for technical reasons it cannot be estimated with any degree of accuracy to what extent blindness as a whole could be prevented by limitation of parenthood in individual cases.

Before any dogmatic advice can be given and definite recommendations made in all cases of hereditary ocular disease a great deal of further work must be done particularly on the mode of transmission of these defects. On the elucidation of these facts depends the possibility of giving a fair and reasonably accurate prognosis. There are at present no statistics in ophthalmology which shed any light on the problem of 'penetration,' a term used to denote the frequence with which a normal or pathological character manifests itself in a heterozygous individual. Until these data are forthcoming it would seem that in the present state

of our knowledge we should be justified in recommending abstention from parenthood only to those individuals who are affected by hereditary diseases which cause serious damage to vision and in whom the mode of transmission is dominant, to their unaffected blood relatives and to those who may transmit the disease in a sex-linked manner, such as the females in families affected by Leber's optic atrophy. In many other hereditary ocular disorders, although it might seem to some a proper course to advise a potential transmitter to forego parenthood, statistics and facts collected to date afford in many instances a groundwork as yet too insecure for a dogmatic stand to be taken.

In this connexion it is apposite to call attention to the masterly report on Hereditary Diseases of the Eye resulting in Blindness, their social consequences and the measures that may be proposed, which was read at the session of the International Association for the Prevention of Blindness on April 5, by Professor Franceschetti of Geneva.

This is too long for abstraction in this place; it should be read in the original. We append Professor Franceschetti's conclusions.

"In conclusion, we shall briefly summarize the measures discussed in detail in the previous chapters, which we believe will enable us to diminish the incidence of hereditary blindness.

a.—Collection of precise and complete statistics,

b.—Training of physicians (especially of ophthalmologists) in genetics, and education of authorities and public,

c.—Extension of facilities for pre-marital consultation, and the general introduction of the pre-marital certificate,

d.—Increased use of social workers,

e.—Decrease in consanguineous marriages,

f.—Decrease of the transmission of hereditary eye diseases by making sterilization available to the patients.

I am of the opinion that a committee should be named to study the means of realizing these different objectives. In working upon an international plane, this committee should be able to bring together the material which will permit judgment of the efficacy of the steps taken to decrease hereditary blindness in the various countries, and concrete recommendations to be made in the near future."

Research Work in Ophthalmology

In 1928, Vol. XII, p. 214, we called the attention of our readers to the fact that the management of the *Brit. Jl. of Ophthal.* was prepared to assist research work in ophthalmology by granting

subsidies towards the expenses of research work to those qualified to undertake it. As stated at the time the qualifications of the candidate, the proposed subject for research and the place where it is to be undertaken, must be submitted for approval to the Editorial Committee. The applicant should give an estimate of the time and expense necessary for the completion of the research and indicate the extent of the financial assistance required.

The right to publish papers based on the research must be given to this journal. Applications on this subject should be addressed to the Editors.

THE COUNCIL OF BRITISH OPHTHALMOLOGISTS

Annual Report

The Council presents its report for the year 1934-35. At its first meeting the following were elected as Officers:—*President*: Mr. Leslie Paton; *Vice-Presidents*: Mr. P. H. Adams, Mr. E. Brewerton; *Hon. Treasurer*: Mr. A. H. Levy; *Hon. Secretary*: Mr. M. L. Hepburn.

The following were appointed to serve on the Executive Committee:— The President and Secretary (*ex-officio*) with Messrs. Greeves, Juler, Levy, Neame, Russ-Wood, and Miss Ida Mann. Mr. Juler and Mr. Neame were elected to represent the Council on the Ophthalmic Committee of the British Medical Association.

It is with much regret that the Council has to report the resignation of Mr. Leslie Paton, who felt compelled to give up his position as President. The Council wish to express their sincere thanks for his efforts and guidance during his term of office. Sir John Parsons was unanimously elected President to succeed him.

The Council has to deplore the death of two of their most active members:— Mr. Bernard Cridland and Mr. Stephen Mayou. The latter was the Treasurer to the Council at the time of his death, and did very valuable work on various Sub-Committees connected with many subjects. He also was one of the Council's representatives on the Ophthalmic Committee of the British Medical Association, and his services helped to keep the two bodies closely in touch with each other. Mr. Bernard Cridland's special experience in the industrial diseases of the eye led the Council to entrust to him much work in any investigations on such subjects; and he always gave of his best ungrudgingly in the service of the Council.

During the year the Council has been investigating the question of Orthoptic Training and the status of those who practise or

wish to qualify for practice in this branch of ophthalmology. A sub-committee has been appointed to consider the whole subject, and have already presented three reports which the Council are engaged in considering.

The Council have also had their attention drawn to the fact that the Hospital Savings Association has been encouraging their members to seek the advice of sight testing opticians; and representatives of the Council together with those of the Ophthalmic Committee of the British Medical Association waited on the Hospital Savings Association Council at their offices and placed their case before them. The interview did not lead to any practical results, and both the Council and the British Medical Association are debating what further steps should be taken in the matter.

The expenses of the Council have, as usual, been defrayed by contributions from its members.

INTERNATIONAL ORGANIZATION OF THE CAMPAIGN AGAINST TRACHOMA AND INTERNATIONAL ASSOCIATION FOR PREVENTION OF BLINDNESS

On the occasion of the Annual Congress the Council of the Ophthalmological Society invited the International Organization of the Campaign against Trachoma and the International Association for the Prevention of Blindness to hold their annual meetings in London. The invitation was gratefully accepted by the sister societies, offspring of the International Council of Ophthalmology.

The International Organization of the Campaign against Trachoma held its first meeting on April 3 when Professor de Grosz (Hungary) announced his resignation of the office of President. He has filled the post most admirably since the foundation of the Organization in 1929. He has been succeeded as President by Mr. A. F. MacCallan (Great Britain), while Dr. F. Wibaut (Holland) remains as Secretary-General.

At the scientific meeting on April 3 the subject for discussion was "The social and legal measures to be taken against trachoma." After an introductory paper read by Mr. MacCallan*, reports of very great interest were read by Dr. Josephus Jitta (League of Nations), Dr. Tewfik (Egypt), Professor Miyashita (Japan), and Dr. Zachert (Poland).

* Published in May No.

The International Association for the Prevention of Blindness met on April 5. Everyone regretted the unavoidable absence of Professor de Lapersonne; his presidential report was read by Professor Terrien. The scientific meeting was held the same day under the presidency of Dr. Park Lewis (U.S.A.). Professor van Duyse (Belgium) gave a résumé of an important paper on "Classification of the causes of Blindness" which was followed by short papers by Mr. Paton (Great Britain), Mr. MacCallan (Great Britain), Professor Marquez (Spain) and Mr. Bickerton (Great Britain). Professor Francheschetti (Switzerland) then read at full length a paper on "Hereditary Diseases of the Eyes."

It is proposed to hold a joint meeting of the two societies in Paris at the time of the annual congress of the Société française d'Ophtalmologie in May 1936. The subject for discussion will be "The treatment of trachoma: (*a*) when carried out by an ophthalmologist; (*b*) when carried out by a general practitioner."

Among the festivities arranged in honour of the foreign visitors there was a splendid entertainment given at Clothworkers' Hall by the Master and Wardens on April 3. They were the guests of the Council of the Ophthalmological Society at the Annual Dinner on April 4, and of Sir John Parsons and Mr. and Mrs. Leslie Paton at dinner on April 5, previous to attending a reception at Lancaster House given by His Majesty's Government.

INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS

The annual General Assembly of the International Association for the Prevention of Blindness was held on Friday, April 5, by the courtesy of the Royal Society of Medicine in the House of the Society.

The Executive Committee met in the morning. Dr. Park Lewis, of Buffalo, U.S.A., presided in the regrettable absence of Professor de Lapersonne, of Paris. The Report for the year was presented in French by Professor Terrien, and in English by Mr. Bishop Harman. The accounts showed an increase of contributions from French sources. An appropriation of 3,000 francs was voted for propaganda purposes in the formation of sight-saving classes in France. Professor van Duyse of Ghent was elected secretary-general, and Mr. MacCallan to represent Great Britain in place of Mr. Cridland, whose early death was deplored. A joint meeting was arranged between the Association and the Organization against Trachoma to be held in Paris in 1936. The subject

for the first report is to be "Epidemic conjuctivitis in children from birth to ten years of age," prepared by Mr. Bishop Harman.

The afternoon was devoted to a public meeting at which there was a large attendance. Professor van Duyse presented a report on "The Classification of the Causes of Blindness." He agreed with Trousseau that "without an accurate knowledge of the causes it is impossible to discover the diseases against which we must concentrate our efforts." His committee showed two opposed views as to the character of such a classification. Professor Marquez (Spain) and Dr. Marx (Holland) desired most detailed classifications which would serve as a basis for scientific discussion. Mr. Bishop Harman and Dr. Maziny Bey (Egypt) desired a briefer classification, more simple, more clear, more adaptable, which would be used to draw the attention of the authorities to the economic losses resulting from blindness. Professor van Duyse reported that the case for each of these classifications was made out, and each was needed for its special purposes.

Mr. Leslie Paton, speaking as a member of the Prevention of Blindness Committee of England said that their investigation of actual reports of cases of blindness made on a lengthy classification was well advanced and he hoped that the findings would be published shortly. So far as they had gone he was inclined to think that experience showed that some shortening of their classification might be advantageous.

Mr. Myles Bickerton (London) said that the tale of the blind for this country was lamentably deficient. Their means of finding out the numbers with accuracy was unsatisfactory. Mr. Lovett of the Ministry of Health (also a member of the Prevention of Blindness Committee) said that there was ground for thinking that Mr. Bickerton's criticisms were not wholly justified. It was true that well-to-do blind folk did not apply for blind pensions, but they had no hesitation in claiming free wireless licences, so that their numbers were known. So far as other classes were concerned the social services of the country were most complete.

Professor A. Franceschetti, of Geneva, presented a report on Hereditary Disease of the Eye resulting in Blindness, their social consequences and the measures that may be proposed. The report had been translated into English and those attending the assembly had the advantage of being able to follow the argument of this excellent report in detail.

Reception at Lancaster House

On the evening of Friday, April 6, there was a great reception by the Government at Lancaster House, adjoining St. James' Palace. The company was received by Mr. Geoffrey Shakespeare,

M.P., Parliamentary Secretary to the Ministry of Health and Mrs. Shakespeare, in the regrettable absence, through illness, of the Right Hon. Sir Hilton Young, the Minister of Health. A great company, estimated to have exceeded one thousand assembled in this beautiful Georgian house, truly one of the lesser palaces of London. No more fitting place could have been found for such a reception, the setting was magnificent, the music delightful, and the priceless collection of the London Museum which was open to the company gave an additional interest to the reception; whilst the elegance of the dresses of the ladies lent an added colour to the proceedings. It was perhaps regrettable that the men had not been ordered to appear in academic dress, then the effect would have been brilliant! The delegates from abroad, and some thirty-four countries were represented, were high in their appreciation of the Government hospitality. Many members of the Ophthalmological Society, of the International Ophthalmological Council, the Organization for the Prevention of Blindness were present. It is interesting to note that Mr. Percy Flemming, sometime ophthalmic surgeon at University College Hospital, is now associated with the work of the London Museum.

THE MOORFIELDS EYE HOSPITAL

Opening of the King George V Extension by their Royal Highnesses the Duke and Duchess of York, May 16, 1935

AT the opening of the King George V extension of the Royal London Ophthalmic Hospital (Moorfields) their Royal Highnesses the Duke and Duchess of York were welcomed on arrival in the Borough by His Worship the Mayor of Finsbury and the Mayoress, and at the Hospital by Theodore W. Luling, Esq., Chairman of the Hospital, and Mrs. Luling. H.R.H. Prince Arthur of Connaught, K.G., President of the Hospital, was regrettably absent owing to illness.

Mr. Luling welcomed their Royal Highnesses at the opening ceremony and spoke of the interest that members of the Royal Family had always shown in the work of the Hospital. Queen Victoria was associated with the old hospital for many years. King Edward and Queen Alexandra, when Prince and Princess of Wales, laid the foundation stone of the present hospital, and the present King and Queen, when Duke and Duchess of York, declared the building open in 1899.

The extension, he said, had been necessary to accommodate and

treat an increasing number of patients and to maintain efficiency. This extension had cost £113,000 to build and equip including the purchase of additional land. They had striven their utmost to open the building free from debt but were still short of the required amount by £5,000. An anonymous donor who had already given them £6,000 had promised £4,500 if the balance was raised by June 30.

The Duke of York in graciously declaring open the King George V Extension said, "We are very glad to know that by our visit here to-day we are forging yet another link in the long chain of association between my family and this great hospital. I wish to express my admiration for this wonderful out-patients department in which we are now assembled."

The Duke paid a tribute to the work of the voluntary hospital system, to the devotion of time and knowledge by the medical and lay committees and to the generosity of thousands of donors and subscribers who gave with no thought of personal gain but solely for the benefit of their fellow-men. The fact that the voluntary hospital system fostered this spirit in our national life was not the least of its many merits. He said that the chairman had spoken of failure "but I think we can regard it as a glorious failure to have raised the sum of £108,000 towards a sum exceeding £113,000. It is an effort for which those responsible are to be congratulated."

Concluding he said that it had been particularly desired that the new building, to which the King had given his name which was being opened during the Jubilee celebrations period, should be opened free from debt, and he sincerely hoped that before this period had expired those wishes would have been realized.

The Architect, Mr. Alec Smithers, F.R.I.B.A., F.S.I., Mr. John Greenwood, builder and Mr. H. E. Harewood, general foreman, and a group of workmen were presented to their Royal Highnesses after which they inspected the extension.

The main feature of the King George V extension is the new out-patients' department. It also contains new bacteriological and pathological laboratories, departments for ultra-violet ray therapy and electro-therapeutics, orthoptic training, museum, library, contributary wards for women and men, lecture theatres, dining rooms, nurses' common room and bedrooms, a sitting room for private patients and a flat roof garden.

ABSTRACTS

MISCELLANEOUS

(1) **Gordon, Benjamin L. (Atlantic City).—Importance of cephalalgia in ocular diagnosis.** *Arch. of Ophthal.*, May, 1934.

(1) **Gordon's** paper is based on a study of 1,339 patients. He has drawn certain conclusions which he hopes will help to clear up some of the confusion at present existing with regard to ocular headaches. As evidence of this confusion, the author quotes from the literature many and various hypotheses as to the cause of headache, beginning with the Babylonians, Persians and Hebrews, who ascribed it to the activities of a specific demon known in the Talmud as Tsihatho. His own view is that the site of ocular pain is in the muscles of the head, the pain reaching this area, in a reflex manner analagous to that in which reflex pain is caused elsewhere. The most important factor "is the presence of an abnormal condition of the nerves in the eye itself due to abnormalities in its make up, such as the presence of ametropia or heterophoria. The more pronounced the instability of the ocular nerve supply, the more painful is the headache."

Among predisposing causes, heredity, age and occupation are of importance, also impaired health, particularly a broken-down nervous system. Taking headache as a whole, about 50 per cent. of cases are due to ocular causes, though some authorities would put the figure very much lower ascribing the majority to a psychoneurosis. The association of headache with low errors of refraction and of muscle balance is due to the attempts made by the ocular muscles to overcome these defects. When the errors are of high degree compensation is not attempted and so no strain results. The attempt to use the two eyes together is also a fertile cause of headache as is shown by its relative absence in those who are organically or functionally monocular.

F. A. W-N.

(2) **Poos, F. (Münster).—Clinical observations in vasomotor hemicrania with ocular symptoms. (Klinische Beobachtungen bei der Hemicrania vasomotoria mit Ausfallerscheinungen im Bereiche des Sehorgans).** *Klin. Monatsbl. f. Augenheilk.*, Vol. XCII, p. 58, 1934.

(2) **Poos** describes nine cases of migraine with ocular complications:—

1. A patient, subject to typical migraine with scintillating scotoma between the ages of 13 to 35 years, developed at 53 years, a persistent, complete, right-sided hemianopia, the maculae being

spared. There was return of the migraine and there was no change for three years.

2. Transient right-sided external rectus palsy followed later by cerebral vascular crisis. These developed and regressed independently of attacks of migraine with scintillating scotoma.

3. Recurrent right-sided external rectus palsy associated with palsy of the inferior rectus.

4. and 5. Paralysis of inferior rectus.

6. and 7. Oculomotor palsy.

8. and 9. In one there was an isolated reflex rigidity of the pupil; in the other left-sided iridoplegia with right-sided reflex rigidity.

The author's impression would seem to be that the cases cannot be regarded as of the same class as uncomplicated migraine. An extensive bibliography is given.

ARNOLD SORSBY.

(3) **de Andrade, C. (Bahia, Brazil).—Two cases of hemicraniosis with atrophy of the optic nerve. (Dos casos de Hemicraneose com atrophia de nerve optico).** *Rev. d'Opthal. de S. Paulo.*, Vol. CXI, p. 225, 1934.

(3) One of the most rare of the craniostoses is hemicraniosis, which is a bony tumour of congenital origin, occupying one side of the head, chiefly in the region of the trigeminal nerve.

The first case was described by Brissaud and Lereboullet in 1903. These authors showed that such tumours gave rise to a necrosis of bone and of dura similar to a psammoma. Then later Duvigneaud and Marigot de Treigney demonstrated a case with an accompanying atrophy of the face on one side and an intermittent paralysis of the external rectus muscle. There was no optic atrophy in these cases. There was never any history of trauma.

M. Lery described a similar tumour, again of congenital origin, in a boy, aged 11 years. It was entirely painless; smell and hearing were diminished on the side of the tumour, and there was a convergent strabismus with manifest diplopia. In **de Andrade's** two cases, X-rays showed a marked thickening of the skull, with necrosis similar to that of a sarcomatous growth of meningeal origin invading the skull. The first case had marked facial asymmetry which was accentuated by the presence of a large fibroma at the level of the zygoma. The eye on the side of the growth was proptosed. There was a paresis of the external rectus and some manifest diplopia. The left eye (*i.e.*, the eye on the affected side) was 8 mm. lower than the right. The right vision was normal, but the left slightly defective. There was an atrophy of the left optic nerve which progressed slowly, and after three

years the left eye was completely blind. The Wassermann reaction was positive. The atrophy of the optic nerve was due to the pressure of the bony tumour. The differential diagnosis is discussed. In the second case there was again a bony enlargement of the face on the left side. There was complete atrophy of the optic nerve. There was no alteration in the external muscles of the eye. The Wassermann reaction in this case was positive.

E. E. CASS.

(4) **Pavia, J. L. (Buenos Aires). — The fundus of the eye, capillaritis. (Fondo de ojo, capilaritis).** *Rev. Oto.-Neuro.-Oftal. y de Cir. Neuro. Sud.-Amer.*, Vol. IX, p. 205, 1934.

(4) **Pavia** stresses the importance of the examination of the fundi in cases of general diseases. Minute lesions in the choroid and retina may be amongst the earliest symptoms of some diseases.

The depth at which these lesions are situated can be determined with the aid of a binocular ophthalmoscope. When these lesions are very minute, they cannot be seen with the ordinary ophthalmoscopic methods, and are only discovered by means of the binocular ophthalmoscope. The author quotes Bailliart's paper on capillaritis and the necessity of thorough general investigation to determine the significance of early fundus lesions.

The author here describes a case seen in his own clinic. The patient was aged 46 years, and was suffering from iridocyclitis in the right eye. The pupil was dilated, and a minute fundus examination revealed the existence of a doubtful capillaritis. The patient never returned to the clinic, but two years later was examined by someone else and was diagnosed as subacute conjunctivitis. A month later he was seen by Pavia, as the vision in both eyes had suddenly failed and he had bare perception of light.

Both discs showed atrophy, exudates, and changes in the macular region. The urine contained 3·5 grs. of glucose per cubic centimetre. The vision had begun to fail six months previously, that is to say, 18 months after the author had first discovered the fundus lesions.

In conclusion, the author stresses the importance of laboratory tests in cases with early retinal changes.

E. E. CASS.

(5) **Pavia, J. L. (Buenos Aires).—The fundus of the eye, the evolution of a green coloured spot and foci of capillaritis. (Fondo de ojo, evolucion de una mancha de color verde y de focos de capilaritis).** *Rev. Oto.-Neuro.-Oftal., y de Cir. Neuro., Sud.-Amer.*, Vol. IX, p. 154, 1934.

(5) **Pavia** refers to a previous paper of his regarding the significance of a "green coloured" lesion in the fundus. In the present paper he describes 25 cases, with chronic diseases and retinal

lesions, showing green spots recorded by coloured photographs. All cases showing this green colour have some oedematous condition of the retina.

The author describes the case of a diabetic, aged 69 years, who had very fine points of exudate in both eyes; his blood sugar was 0·220 per cent. In the right eye there were some white patches at the macula, situated behind the retinal vessels and scattered all over the posterior pole.

A coloured photograph was taken and a green spot was seen to be situated above the inferior macular vein. The ordinary black and white photograph showed no difference in this region, nor did examination with red-free light. The author points out that in a previous paper he says that a retinal photograph in black and white shows retinal changes whereas a colour photograph shows choroidal changes.

The green spot corresponded with the spots of choroidal capillaritis.

Confirming the situation of the lesion (*i.e.*, in the choroid and not in the retina) no scotoma for white or colours could be found, and colour vision and dark adaptation were normal. The patient was given general treatment for his diabetes and when the blood sugar was only 0·142 per cent. no green spot was seen at the macula. When, however, he stopped his treatment and the blood sugar rose, the green spot was again seen and the white spots of exudate were more accentuated.

On treatment this lesion again disappeared. The patient was not seen for three months and then came up again complaining that he could not see so well with his right eye. The blood sugar was 0·230 per cent. There was now a superficial exudate at the macula and a small haemorrhage. The green spot was not so obvious as in the first examination. In the colour photograph the choroid could be seen much more distinctly in the region of the lesion and the author thinks there was some retinal degeneration.

Pavia thinks that the green spot is caused by the presence of serum in abnormal quantities in the tissues (retina or choroid). The bilirubin of the serum is acted upon by the oxidases present in the tissues, forming biliverdin.

E. E. CASS.

(6) **Pavia, J. L. and Dusseldorf, M. (Buenos Aires).—Pigmentary degeneration of the retina with alterations in the region of the macula. (Degeneracion pigmentaria de la retina con alteraciones de la region macular).** *Rev. Oto.-Neuro.-Oftal. y de Cir. Neurol., Sud.-Amer.*, Vol. IX, p. 118, 1934.

(6) **Pavia and Dusseldorf** say that alterations at the macula have been very rarely observed in cases of pigmentary degeneration of the retina. One case has been described with an "orange

coloured focus," with pigmented borders, five with clear areas with spots of pigment, and one with a brownish area. There have been some doubtful cases where there were some pigmentary spots in the macular region. Attempts have been made to classify infantile and juvenile degenerations with pigmentary degeneration of the retina.

The authors describe a case of a Russian, aged 55 years. Night-blindness started in childhood, there was no family history; in the right eye the disc was a good colour, and had well-defined margins, the veins were normal and the arteries narrowed. At the macula was a polygonal area of half a disc diameter and darkish red in colour. Below this were two spots of black pigment. Round the central zone was a pale rose ring about half to three-quarters of a disc's diameter, whose irregular borders were defined by pigment; its limits were most marked on the temporal side. The other changes were peripheral, they consisted of numerous scattered pigmented spots, of irregular size and shape, many of them following and enveloping the vessels.

In the region of the papilla many choroidal vessels showed sclerosis. The spaces between the choroidal vessels instead of containing normal pigment contained a substance which was greyish-green in colour.

In the left eye at the macula there was a central zone in the form of an X, the two arms directed towards the disc, which was dark red. Surrounding this zone was another with the characteristics as described in the right eye. The other peripheral lesions were similar.

"Coloured retinographs" were taken, and showed that behind the spot at the macula there was an irregular accumulation of pigment.

There was evidently a deficiency in the layers of the retina at this point. The greyish-green substance previously mentioned appeared to be green. This substance was deep to the pigment deposits.

The visual fields showed annular scotomata in the periphery, and small central scotomata. The vision was—Right eye: finger-counting only, and left eye : 7/10. Dark adaptation, nil in the right, and diminished in the left.

The patient was treated with injections of liver extract for six months. In March, 1934, with red-free light, the right and left fundi showed a localized yellow-spot. The visual fields were the same as before. The vision was—Right eye 3/10; Left eye 8/10. The colour vision showed many abnormalities. The dark adaptation had improved.

(Note:—Dr. Pavia uses a Zeiss - Gullstrand binocular ophthalmoscope.)

E. E. CASS.

(7) **Pavia, J. L. (Buenos Aires).—The remarkable change in the ophthalmoscopic appearances in a severe diabetic choroido-retinitis, following diathermy puncture for retinal detachment. (Notable modificacion del aspecto oftalmoscopico en una grave corio-retinitis diabetic por la micropuncion diathermica de una desgarradura de la retina).** *Rev. Oto.-Neuro.-Oftal. y de Cir. Neuro., Sud-Amer.*, Vol. IX, p. 126, 1934.

(7) **Pavia** describes a case of a diabetic with a high glycaemia, in which one eye had been blind for two years, and the other had choroido-retinitis. Three months before he was seen by the author he was knocked on the head and the vision of the left eye was appreciably diminished and only a very small sector of the field was left. There was a large retinal detachment, corresponding roughly to the diminished field. Although little hope of any improvement was given to the patient, he wished for an operation, which was accordingly performed.

A big conjunctival flap, extending from "1 o'clock" to "5 o'clock," 7 mm. from the limbus, was dissected up and the external rectus was cut. Dugast's diathermy apparatus was used and two punctures were made. The patient was kept flat on his back for five days after the operation. Twenty-nine days after the operation the vision was 1/16 (Wecke) and the visual field was markedly improved.

Retinal photographs taken before and after the operation are shown, demonstrating that the detachment was considerably less after the operation, but the astonishing thing was that a large number of the exudates rapidly disappeared after diathermy and the vessels, which were hidden by the intense infiltration of the choroid and retina, came into view.

E. E. CASS.

(8) **Orzalesi.—The pathology of Coats' disease. Retinitis exudativa externa. (Retinite prolifero-degenerativa del foglietto esterno).** *Boll. d'Ocul.*, July, 1934.

(8) **Orzalesi** has had the opportunity of examining an eye which was removed on account of the mistaken diagnosis of glioma. The lesion was in reality Coats's disease in various stages. From the microscopical anatomy of the specimen he concludes that the first change is an affection of the pigment epithelium which produces a secretion between the layers of the retina; the nature of this secretion is not ascertained, but the author thinks it is probably viscous and colloid. In it are found a number of cells derived from the pigment epithelium and some red corpuscles derived by diapedesis from the engorged choroidal vessels. This exudate is not absorbed, but seems to interfere with the proper nutrition of the retina and this also undergoes degeneration.

HAROLD GRIMSDALE.

(9) **Malkin, B. (Saratov).—Orbital alcohol injection. (Ueber orbitale Alkoholinjektionen).** *Zeitschr. f. Augenheilk.*, Vol. LXXXII, p. 286, 1934.

(9) **Malkin** recalls division of the optic nerve as a procedure which aimed at retaining a blind painful eye. He finds alcohol injection, first advocated by Grüter in 1918, a superior method. Of 26 cases thus treated, 23 were glaucomatous; in 22 cases the procedure had to repeated, and in most cases antiglaucomatous measures, such as trephining and the use of miotics, had to be carried out in addition.

Technique: Cocainize the eye. Inject 1 c.c. of 2 per cent. novocain-adrenalin, using a needle 4 cm. long, and injecting backwards within the orbit at the lower and outer angle. Leave needle *in situ* and inject, 8 to 10 minutes later, 1 to 3 c.c. of 80 per cent. alcohol (40 per cent. if eye still retains useful vision). Subcutaneous injection of morphia to control pain which generally lasts for one to two hours.

Complications: Oedema of lids and conjunctiva. Transient ocular palsies (ptosis lasting several months has been observed). Headaches lasting as long as 5 to 12 days or even longer.

ARNOLD SORSBY.

BOOK NOTICES

Aids to Ophthalmology. By N. BISHOP HARMAN. Eighth edition. Pp. 234, 203 illustrations. London: Baillière, Tindall and Cox. 1935. Price, 3/6.

That this little book has attained its 8th edition is testimony to its popularity and usefulness to the student who wishes to learn the essentials of practical ophthalmology in a concise and direct form. The author has emphasized the relation of general medicine to a number of ophthalmic diseases and injuries. He has included a chapter on 'Standards of Vision' for official and other appointments for the convenience of reference. The 7 chapters on refraction are based on sound teaching and should form a concise guide to the practitioner who may wish to begin this branch of work after qualifying.

The whole book has been corrected, revised and brought up to date, and 38 new illustrations included. At the end there are 22 examination questions such as might be asked in any final qualifying examination. It is a valuable book for the student on the eve of examination and for the busy general practitioner who wishes to revise important and essential facts in the practice of ophthalmology.

Ophthalmology in General Practice. By O. GAYER MORGAN. Pp. 58, 10 plates. London: John Bale, Sons and Danielsson, Ltd. 1935. Price, 2/6.

This book forms one of a series of "pocket-monographs on practical medicine." In some 58 small pages the author has endeavoured to impress upon the reader the importance of a careful routine examination of an eye by simple methods that are within the scope of a general practitioner and to point out instances where it is essential to refer the case to the ophthalmic specialist for advice or further investigation by more highly technical instruments. The author draws attention to the fact that the majority of pathological ocular lesions affect the anterior part of the globe and that on this account these are more accessible for examination and treatment. He devotes a fair proportion of the book to descriptions bearing on the differential diagnosis of an inflamed eye and stressing the type of case in which delay in seeking expert advice might prove disastrous. Fundus lesions which have a bearing on general medicine have been mainly selected for description.

There are 10 plates; 1 line drawing and 1 index page. The book is of a small and convenient size to fit into a coat pocket. Before it goes to a 2nd edition it will require proof correcting. There are 19 misspelt words and errors of punctuation, a large number for 58 small pages of type.

Transactions of the American Ophthalmological Society. Vol. XXXIII. Philadelphia. 1934.

The *Transactions* record the agenda and papers read at the 70th Annual Meeting at Lucerne-in-Quebec, 1934, and results in a massive volume of 638 pages. The contents appear to be of more than usual interest, and we hope to abstract some of the papers for publication in the later issues of the journal.

At the Annual Meeting Dr. Walter B. Lancaster, of Boston, was elected President. We note that among the members who died last year were Dr. W. C. Finnoff, of Denver and Dr. H. D. Bruns, of New Orleans.

The Proceedings of the All-India Ophthalmological Society. Vol. III, 1933.

The Proceedings of the All-India Ophthalmological Society Vol. III, 1933 contains some 34 scientific papers on subjects of current interest and about diseases encountered in Indian practice but rare in Europe; accounts of three addresses delivered to the Society; a list of officers, the committee, and the members; the rules and regulations; the treasurer's report and an index.

We hope to publish reviews of some of the papers in the abstract section of the *Brit. Jl. of Ophthal.*

Dr. D. N. Maitra, the Chairman of the Reception Committee in the course of his Welcome Address spoke of the importance of guarding against looking through the tube of specialism. He quoted Sir John Parsons who in his Presidential Address to the Ophthalmological Society of the United Kingdom some years ago stated that "the bane of specialism is isolation and its cure co-operation."

Dr. Maitra said that the medical practitioner besides his professional attainments should be an earnest social worker, education reformer, and seeker of economic welfare.

Sir Hassan Suhrawardy in his Opening Address welcomed those present and spoke of the vast field for ophthalmological work that there was in India and of the need for well equipped modern ophthalmic hospitals and of the necessity for prophylactic measures against blindness. He expressed the hope that post-graduate studies and a diploma in ophthalmology might be established and that the same standard of efficiency and experience would be attained as in the British Isles and on the continent.

The Presidential Address delivered by Lt.-Col. J. N. Duggan, C.I.E., O.B.E. contains a lucid and admirable account of the recent advances in ophthalmology, in particular the biochemical problems concerned in the aetiology of glaucoma and cataract; in the field of therapeutics the successes that have been attained with tuberculin and radium in certain ophthalmic disorders and the modern surgical treatment of retinal detachment. This excellent address ends with a plea for work in the prevention of eye diseases and for research carried out in a spirit of healthy co-operation.

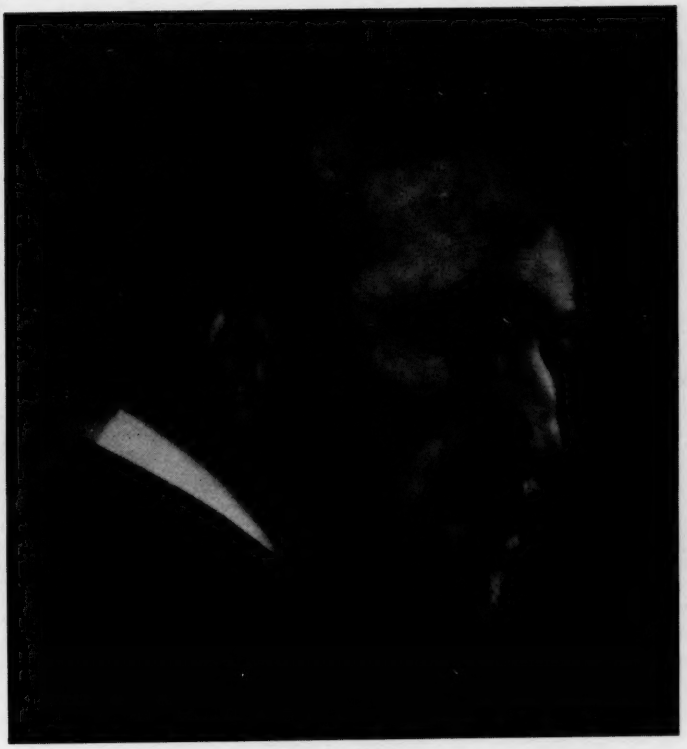
OBITUARY

DR. VICTOR MORAX

DR. VICTOR MORAX died on May 14 in Paris. The world of ophthalmology has lost one of its most scientific exponents, the Ophthalmological Society of the United Kingdom has lost one of its three honorary members of foreign nationality, and some of us mourn a very dear friend.

Morax was born in a charming villa at Morges, on the banks of the Lake of Geneva, where his two brothers were still living in 1930, when Mayou and the writer enjoyed their hospitality one delightful evening in July, in company with Bailliart and Petit.

His medical education Morax carried out entirely in Paris, where as a citizen of France he lived for the rest of his life.



VICTOR MORAX

UNIV. OF MICH.

He became an expert bacteriologist, with a special interest in the flora of the conjunctiva. In 1901, as the result of an official visit to Egypt, he brought an important contribution to the study of trachoma. He determined the clinical characteristics of the disease, and showed that its acute manifestations were due to superimposed infections with the gonococcus, the Koch-Weeks bacillus and the pneumococcus. This was a highly important observation, since until then trachoma had been divided into acute and chronic categories. However it must now be recognized that rarely trachoma does begin acutely in the absence of known bacterial invasion.

In 1906 he described a diplobacillus in *Annales de l'Institut Pasteur,* the pathogenic qualities of which were confirmed by the researches of Axenfeld in the same year, and the organism is commonly known as the diplobacillus of Morax-Axenfeld.

In 1919 he delivered the Bowman Lecture before the Ophthalmological Society of the United Kingdom, his subject being "Plastic Operations in the Orbital Region." This had special reference to war wounds. A study of this paper is essential for all ophthalmic surgeons who may have to deal with wounds involving the orbit.

From 1903 to 1929 Morax directed the clinical work at the Lariboisiére Hospital in Paris, where he had facilities for continuing his important bacteriological studies. Since then he was granted a room for research at the Pasteur Institute, where he spent much time.

Realizing the importance of trachoma as a world-wide disease he was the main-spring of La Ligue Contre le Trachome. This French society commenced in 1924 the publication of a journal *La Revue du Trachome.* As the only journal which dealt entirely with trachoma it obtained world-wide influence. In 1926 the growing importance of the trimestrial publication justified the alteration of its title to *La Revue Internationale du Trachome.* It accepts articles in any European language, and gives summaries of all important articles on trachoma which are published in the medical journals of other countries.

Morax brought out the fourth edition of his *Précis d'Ophtalmologie* in 1931. In the opinion of some who are qualified to judge it is the best text-book on ophthalmology in any language.

During each of the last ten years the *Bulletin de la Société française d'Ophtalmologie* has always contained an important paper by Morax. Perhaps the most interesting of his contributions has been his report on the different varieties of follicular conjunctivitis in the 1933 volume.

For the International Congress of Ophthalmology at Madrid in 1933 he prepared an important report on the microbiological aetiology of trachoma.

Morax was a member of the Executive Committee of the International Organization of the Compaign against Trachoma and played an important part in its work.

He was elected a member of the Academie de Medicine in 1930. He married the daughter of the late Professor Pinard, by whom he had six sons.

NOTES

Erratum

IN Mr. Marshall's paper in the April issue: p. 197, end of 14th line from *bottom* of page, for "neuro-" read "retro-."

* * * *

North of England Ophthalmological Society. Officers of

AT the Annual Meeting of the Society on April 12 the following members were elected to the Council for the Session, October, 1935, to October, 1936:—*President:* Mr. A. T. Paterson, Newcastle-on-Tyne; *Vice-President:* Mr. W. W. Muirhead, Sheffield; *Members of Council:* Mr. O. M. Duthie, Manchester; Mr. P. Eldon Gorst, Liverpool. The Treasurer and Secretary were re-elected.

* * * *

The Leslie Dana Gold Medal

THE Leslie Dana Gold Medal, awarded annually for outstanding achievements in the Prevention of Blindness and the conservation of vision, has been awarded to Dr. William H. Wilder, of Chicago.

Last year's recipient was Professor de Lapersonne, of Paris.

FUTURE ARRANGEMENTS

1935

June 14.—Section of Ophthalmology, Royal Society of Medicine (Annual Meeting).

July 4, 5 and 6.—Oxford Ophthalmological Congress, at Oxford.

July 29—*August* 2.—Second International Neurological Congress, in London.

October 1.—Midland Ophthalmological Society, at Birmingham Eye Hospital.

December 3.—Midland Ophthalmological Society, at Birmingham Eye Hospital.

CONTEMPORARY OPHTHALMIC LITERATURE

American Journal of Ophthalmology. *April, 1935.*

FERREE and RAND. Intensity of light in relation to the near point and the apparent range of accommodation.
LUCKIESH and MOSS. Fatigue of convergence induced by readings as a function of illumination intensity.
WEYMANN. Use of sclerosing solutions in ophthalmic therapeutics.
GOWEN. Temperature changes in the conjunctiva in relation to application of heat and cold to the skin.
EVANS. Transient fluctuations in the scotoma of glaucoma.
CORDES and HARRINGTON. Bilateral absorption of intra-ocular copper with chalcosis in one eye.
CASTROVIEJO. Photography of the eye with the miniature camera.
DAVIDSON. A simple device for measuring stereopsis.

Annales d'Oculistique. *April, 1935.*

MAGITOT. Clinical angioscotometry.
CHARLIN. Complicated hysterical amaurosis.
MORAX. Bilateral optic neuritis of a retro-bulbar type after intra-venous injection of alcohol in the course of a puerperal infection.
ADAMANTIADIS. Pustuliform keratitis profunda and diverse forms of acquired syphilitic parenchymatous keratitis.

Archives d'Ophtalmologie. *April, 1935.*

BONNET. Evolution of macular alterations in "angioid streaks of the retina." Its analogy with the process of senile macular exudative retinitis.
WEEKERS. An easy and sure procedure for dacryocystorhinostomy.
MICHAIL. Primary calcareous degeneration of the cornea.
DEJEAN and CAMBOULIVES. The detection of ocular tuberculosis by the agglutination reaction of Holland.

Klinische Monatsblätter für Augenheilkunde. *April, 1935.*

SCHMIDT. The fatigue time of the colour systems in normal trichromatism.
DENIG. My procedure in cataract operation.
VELHAGEN. A rare form of granuloma of the retina.
RINTELEN. Haemangioblastic lid sarcoma. Also a contribution to the study of angioblastic tumours.
JAENSCH. Fusion disorder after cerebral shock.
DOESSCHATE. About parallel compression.
ROGGENKÄMPER. Hole of the retina in detachment together with some remarks about its origin.
LÖWENSTEIN. The treatment of retinal detachment.
VAN MANEN. A periscope as an additional help in diascleral illumination for retinal detachment localization.
KLAR. An ocular syndrome after commotio cerebri.
WESKAMP. Segment differentiation of the central retinal vessels.
FAZAKAS. Kerato- and Meibomian mycosis following acrostalagmus.
JANSON. Traumatic myopia.
NOWKIRISCHKY. A case of malignant melanoma of the lids in youth with metastatic formation and fatal termination.

Annali di Ottalmologia e Clinica Oculistica. *March, 1935.*

VENCO. Studies on monolateral myopia.
BIFFIS. Paraboloid form of the surface of the lens and deviations from the senile conditions.
VITTADINI. Cystic dilatation of the superior canaliculus.
CASTELLI. Ophthalmo-zoological endemic from "Paederus." (Characteristic ocular affection in an acute endemic provoked by insects).

Bollettino d'Oculistica. *March, 1935.*

DE CORI. Epithelioma carcinomatosa of the cornea.
MOTOLESE and JABLONSKI. The relation between experimental ophthalmology and psychology.
ANASTASI. Monocular myopia.
ANELLI. Extract of the lacrymal gland in the repair of corneal ulcers.
FIORE. Research on the chemical nature of argyrosis of the conjunctiva.
RAVERDINO. The cure of retinal detachment, without tuberculous aetiology.
PUGLISI-DURANTI. Lesions in the vitreous from diathermy coagulation.
BORSELLINO. Cataract from electric discharge of industrial current.

Rassegna Italiana d'Ottalmologia. *January-February, 1935.*

STILO. Contribution to the study of the evolution and rela ions of the fascia of the ocular globe in man.
CARAMAZZA. Septic neuro-retinitis from Schottmuller's "Streptococcus viridans haemolytica."
CUSUMANO. Focal infection and secondary localization in the eye.
LANZA. Research on atypical visible or invisible tubercle in trachoma material.
FARINA. Sympathetic papillo-retinitis.
CORRADO. High grade hypermetropia.
ZINGALE. The hyperplastic state of the conjunctiva vitiated by rarefaction.

Archivos de Oftalmologia Hispano Americanos. *March, 1935.*

ORTIZ. Traumatic rosette cataracts.
MARTINEZ. Inoculation of a filtrate of trachomatous granulations into a human conjunctiva previously blockaded by coloured colloid bodies.
MOREU. Dacryocystorhinostomy and its clinical results.
MEDRANO. Hysterical paralysis of the nuclear aspect of the 3rd and 7th cranial nerves.

Revista Cubana de Oto-Neuro-Oftalmiatria. *November-December, 1934.*

RUBIO. The application of silver nitrate in gonococcal conjunctivitis.
CEPERO and COMAS. Our electric bistoury for ophthalmology and its application in the treatment of cancer.
YANES. Spring catarrh.

Revista Oto-Neuro-Oftalmolcgica. *March, 1935.*

PAVIA. Slit-lamp. Photograph of its image on the living human eye.

Revista Oto-Neuro-Oftalmologica y de Cirurgica Neurologica. *April, 1935.*

PAVIA. Retinal degeneration. Diverse aspects on three observations.
KEHRER. Oedema of the papilla.